



22502961587

ANNUAL REPORTS

OF THE

SUPERVISING SURGEON-GENERAL

OF THE

MARINE-HOSPITAL SERVICE OF THE UNITED STATES,

FOR THE

FISCAL YEARS 1876 AND 1877.

(John M. Woodworth, M. D.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1878.

WELLCOME
LIBRARY
Ann Rep
WX28
FA1
M33
1876-77



To the Hon. JOHN SHERMAN,

Secretary of the Treasury:

SIR: I have the honor to submit herewith a report of the operations of the Marine-Hospital Service for the fiscal year 1877, being the seventy-ninth year of the Service, and my sixth annual report.

As the report of the operations of the Service for the year 1876 was not printed, the recommendations therein made and the statistics for that year are also included.

I am, sir, very respectfully,

JOHN M. WOODWORTH,

Supervising Surgeon-General.

OFFICE SUPERVISING SURGEON-GENERAL,

November 20, 1877.

	Page.
STATISTICS: MEDICAL AND SURGICAL	31
Comments on the Medical and Surgical Statistics	35
I.—Table of Hospital-Relief Districts	37
II.—Statement, by Districts, of the Number of Patients treated (in hos- pital) each Month during the Year ended June 30, 1876.....	39
III.—Ratio of Hospital Patients treated in each District, 1876	39
IV.—Average Duration of Treatment in each District, 1876	39
V.—Tabular Statement of Diseases and Injuries Admitted and Treated (in hospital) each Month in each District, 1876.....	40-93
VI.—Relative Proportions of Diseases and Injuries.....	94
VII.—Causes of Death, by Months and Districts, 1876.....	95-102
VIII.—Ratio of Deaths from Specific Causes, 1876	102
IX.—Hospital Patients, by Months and Districts, 1877.....	103
X.—Ratio of Hospital Patients in each District, 1877.....	103
XI.—Duration of Treatment in each District, 1877	103
 APPENDIX :	
Comments on the Contributed Papers.....	109
Metric Weights and Measures for Medical and Pharmacal Purposes, by OSCAR OLDBERG, Phar. D	113
Physical Examination of Seamen, by Surgeon P. H. BAILHACHE.....	147
River Exposure and its Effects upon the Lungs, by Surgeon WALTER WYMAN.	157
Yellow Fever at Savannah in 1876, by Assistant Surgeon GEORGE H. STONE.	167
Yellow Fever at Savannah and Brunswick, Ga., in 1876, by Assistant Surgeon HENRY SMITH	175
Yellow Fever at Fernandina in 1877, by Surgeon ROBERT D. MURRAY	191
 INDEX	 203

OPERATIONS

OF THE

UNITED STATES MARINE-HOSPITAL SERVICE:

1877.

(1 M H)

THE MARINE-HOSPITAL SERVICE OF THE UNITED STATES

DURING THE

FISCAL YEAR 1876-'77.

FINANCIAL EXHIBIT.

The collections of hospital-dues covered into the Treasury within the fiscal year ended June 30, 1877, amounted to.....	(a)\$372, 465 70
While the expenditures by warrants on account of the Marine-Hospital Service were	(b)368, 395 28
Showing a surplus of receipts over expenditures of....	4, 070 42

This result is the more gratifying, in view of the fact that no deficiency appropriation has been made for the Marine-Hospital Service since the session of Congress of 1873, and none will be asked of the present Congress, while the average annual deficiency appropriation made during the twenty successive sessions preceding 1873 was \$182,452 50. It should also be stated, in this connection, that since July 1, 1871, extraordinary expenditures have been made out of the Marine-Hospital fund, amounting to \$126,883 31, to which there were no corresponding expenditures or offset during the same number of years immediately preceding. These include the cost of repairs of hospital buildings, and fuel, light, and water, pay of engineers and assistants, and the

a This sum represents the amounts covered into the Treasury during the year. As monthly returns are made of the hospital-dues collections, it necessarily follows that at least one month intervenes between the date of the collection of the hospital money and the date of its reception into the Treasury; hence the above amount includes the hospital-dues collected near the close of the fiscal year ended June 30, 1876, while it does not include the hospital-dues collected near the close of the year to which this report relates. The amount of hospital-dues collected by the customs officers *within the year* was \$368,873 30, (including \$1,396 collected in foreign ports by United States consular officers.)

b This amount represents the moneys paid out of the appropriation from July 1, 1876, to June 30,

ERRATA.

Page 119, line 16, erase the words "*per cent.*"

Page 130, 15th line from bottom, for the word "*more*" read "*less.*"

costs of administration, instruments, hospital furniture, &c.; the repairs and preservation of buildings and grounds, furniture and repairs of furniture, heating apparatus, fuel, light, and water, and other miscellaneous items formerly paid out of moneys specially appropriated therefor, have also been paid for out of the Marine-Hospital fund, by direction of the Assistant Secretary, since the beginning of the fiscal year 1875, and the expenditures for these items are included in the aggregate here given.

compensation of the employés of the Supervising Surgeon-General's office—expenditures which were formerly paid out of special appropriations made for these purposes.^a

RELIEF.

There were 15,175 seamen relieved by the Marine-Hospital Service during the last fiscal year, at an average cost of \$24 22,^b the lowest ever reached, having been reduced from \$38 41 in 1870 to these figures. Of this number 10,975 were treated as hospital patients, and 4,200 as office or "out-patients." Formerly all seamen who applied for relief were sent to hospital, without regard to the nature of their diseases or injuries, whereas now, at ports where medical officers of the Service are stationed, trivial cases, not requiring rest or nursing in hospital, are relieved by furnishing such remedies as may be required without sending the seamen to hospital. It is, in fact, the adoption into the Service of a common-sense principle followed in every community. Not every one who takes sick goes to bed and sends for a physician; many go to a physician's office, obtain a prescription, and go on their way. The number of office or out-patients of the Service has gradually increased year by year since the seamen have learned that such relief can be obtained, and, as a natural consequence, the number of hospital cases has measurably diminished, with a corresponding increase in their gravity. It is believed that this policy has popularized the Service with a large number of seamen, while a few, who were in the habit of making the hospitals convenient boarding-places during the closure of navigation, are disappointed. Seamen requiring medical

^a During the past four years two new hospitals have been furnished and opened for the reception of patients, and two others that had been leased were taken possession of, refurnished, and again occupied for the exclusive accommodation of seamen. These four hospitals were the only marine-hospitals opened since 1861. The Chicago marine-hospital was furnished in November, 1873, and \$8,240 98 was expended for hospital furniture, bedding, clothing, and other necessary outfit to complete the establishment. The San Francisco marine-hospital, turned over to the service by the superintendent of construction, in June, 1875, was furnished at an expense of \$9,430 73. It should be stated that \$6,892 64 was expended, under the direction of the Supervising Architect, for furniture for the Chicago marine-hospital, in addition to the \$8,240 98 paid out of the marine-hospital fund; while the \$9,430 73, expended for furnishing the San Francisco marine-hospital, covered all the furniture, &c., purchased for that institution—even the building itself having been taken possession of in an unfinished state. The Mobile marine-hospital was reopened in September, 1875, and refitted and furnished at a cost of \$2,683 39; and the Louisville marine-hospital in January, 1876, for the furnishing of which \$3,362 18 was expended. From the reorganization of the Service, in 1871, to June 30, 1875, the aggregate expenditures, out of the marine-hospital fund, for items formerly paid out of specific appropriations, were \$13,616 23. In August, 1875, it was ordered, by the Assistant Secretary, that after that time all expenditures on account of the repairs and preservation of marine-hospital buildings and grounds, and for heating apparatus, furniture and repairs of furniture, fuel, light, water, and miscellaneous items for the same, be paid out of the marine-hospital fund. During the fiscal year ended June 30, 1876, the expenditures on account of these items accordingly amounted to \$44,306 52, and during the fiscal year ended June 30, 1877, to \$42,938 91. If to these amounts be added the cost of furnishing and opening the four hospitals occupied since 1873, and the cost (\$2,304 37) of caring for American seamen employed on Government vessels, (for which the Service is reimbursed,) which amounts are included in the total expenditures, as stated in my annual reports, it will thus be found that \$126,883 31 have been expended out of the marine-hospital fund for extraordinary purposes, for which no corresponding expenditures or offset existed during the ten years preceding 1871.

^b Computed on the basis of the expenditures by warrants issued within the fiscal year, the average cost per patient would be \$24 28; but this is not the true cost, as will be seen from the foot-note on page 3.

For surgical attention and rest in hospital are furnished board, nursing, washing, hospital clothing, (if necessary,) treatment, medicines, and surgical appliances. At ports where the number of applicants for relief is too small to warrant making provision for the treatment of patients, except such as cannot be removed without prejudicing their cases, transportation is furnished to the nearest relief-station. Incurable patients often request to be furnished transportation from hospital to their homes or friends, if they are so fortunate as to have such, and applications of this character are granted on condition that further relief, at the expense of the marine-hospital fund, for the same disease for which the patient is at the time under treatment will not be asked or furnished. In illustration may be cited the case of an American seaman—a native of Sweden—under treatment for phthisis pulmonalis, from which there was no hope of recovery, chiefly on account of his excessive homesickness, and who had parents living in Sweden capable and willing to receive and care for him. Had he been refused transportation to his home, he would, without doubt, never have left the hospital, probably remaining several months under treatment, with no other result than to retard somewhat the progress of the disease; whereas the cost of the transportation furnished him—thirty-five dollars—was little more than the cost of one month's board, nursing, and treatment, while the joy of rejoining his family and friends and the change of climate offered him better prospects of recovery than any hospital treatment he could receive.

INSANE SEAMEN.

Under the act of March 3, 1875, eight insane seamen, contributors to the marine-hospital fund, have been since that time admitted to the Government Hospital for the Insane, near Washington City, and of these, two have recovered and been discharged, two have died, (one of whom was probably fatally ill when admitted, and the other suffering from chronic diarrhœa,) and four still remain under treatment.

SEAMEN EMPLOYED ON VESSELS OF THE UNITED STATES GOVERNMENT,

When sick or injured, are admitted for treatment by the Marine-Hospital Service, under the act above cited, upon the application of their commanding officers. Seamen of the Navy, (at places where no naval hospital exists,) of the Coast Survey, Revenue-Cutter, and Light-house Services, and of the vessels of the Engineer Corps of the Army, have thus been cared for during the two years just closed. In this connec-

tion it is proper to again call attention to the fact that, although these seamen ship indiscriminately on Government vessels and merchantmen, and may thus have paid hospital-dues on Revenue-Marine and merchant vessels, they do not pay such dues while employed on the other vessels referred to, and consequently were debarred from hospital relief until the passage of the act of March 3, 1875, under which act they are now cared for, the Marine-Hospital Service being reimbursed the actual cost.

FOREIGN SEAMEN

Are admitted to the marine hospitals upon the application of the consular officers of their respective nationalities, or of the masters of their vessels, under the act of May 3, 1802. A large number of sick foreign seamen are now annually treated by the Service at rates prescribed by the Secretary of the Treasury, under the act of March 3, 1875.

HOSPITAL-DUES COLLECTED FROM VESSELS SOLD OR TRANSFERRED ABROAD—NO PROVISION FOR THE CARE OF SICK AND DISABLED DESTITUTE AMERICAN SEAMEN (WHALERS, ETC.) RETURNED FROM ABROAD BY UNITED STATES CONSULS.

Under section 4586, Revised Statutes, (29th April, 1864, c. 70, v. 13, p. 61,) consular officers of the United States are required to collect of the masters or agents of vessels of the United States, sold or transferred in foreign ports or waters, the hospital-dues that may have accrued up to the date of such sale or transfer. The first time any receipts from this source have been covered into the Treasury to the credit of the fund for the relief of sick and disabled seamen, for which they are appropriated by law, occurred in the fiscal year ended June 30, 1876, when \$5,419 76, collected during portions of 1874 and 1875, was credited to that fund. Prior to that time all amounts collected under the above section were covered into the Treasury to the credit of the appropriation for the relief and protection of American seamen in foreign countries. The seamen employed on the vessels sold or transferred in foreign ports are under the law contributors to the marine-hospital fund, and entitled to its benefits. Yet, while, as indicated, a considerable portion of the hospital-dues has not been available for the Marine-Hospital Service, destitute American seamen returned to the United States from foreign ports under section 4577, (at the expense of the appropriation for the relief and protection of American seamen in foreign countries,) who may not be entitled to the benefits of the Marine-Hospital Service, cannot under the law, if sick or disabled upon arrival in a port of the United States, be admitted to hospital for

treatment. These men naturally seek the marine hospital, and cases are on record where the condition of the applicant was such as to preclude the possibility of refusing admission without fatal consequences and causing scandal. In some cases medical officers of the Marine-Hospital Service have even preferred to admit the men to hospital upon their own personal responsibility rather than to refuse relief, then immediately reporting the facts to the Department.

A letter was received in July, 1874, by the Department, from the surgeon of the Marine-Hospital Service in charge, at San Francisco, Cal., stating that an American seaman—M. Sylva—returned to the United States from Yokohama by the United States consul at that port, had been sent directly from the vessel on which he arrived to the marine hospital, his condition being such as to render previous application at the surgeon's office impracticable. It was afterwards ascertained that the seaman was not, under the law, entitled to the benefits of the Marine-Hospital Service, having been employed on a whaler, and not being a contributor to the marine-hospital fund; that he was not a resident of San Francisco, and consequently had no claim upon any charitable institution in that city, and he was retained in hospital in the interests of humanity. He was suffering from small-pox in an advanced stage, and died after a period of twenty days. A communication was addressed, July 27, 1874, by the Honorable the Secretary of the Treasury to the Honorable the Secretary of State, transmitting a copy of the surgeon's letter, above referred to, and calling attention to the case in question and to the fact that similar cases necessarily occur from time to time, the object of the communication being to ascertain "whether any action may be had through the Department of State, whereby on the one hand the expressed intent of the law with regard to the marine-hospital fund may be fulfilled without entailing colorable charges of inhumanity upon those charged with its administration, and on the other the interpretation of the law-merchant in the interests of the sailor may be made effective." The reply of the Honorable the Secretary of State, dated August 12, expressed a desire on the part of the Department of State that the law be liberally construed in the interests of the beneficiaries of "the fund provided for the relief of destitute seamen abroad," and that Department saw no good reason why the expenses attending the care of such seamen invoking relief in a foreign country, whose health and physical condition indicate sending them to the United States to be treated in a marine hospital, should not be paid out of that fund, which is disbursed under the direction of the Secretary of State. Another letter was then (August 15, 1874) addressed to the

Department of State, proposing the course which seemed best suited to attain the objects in view, and a reply, dated 20th August, received, in which the Secretary of State signified his concurrence in the views of the Treasury Department.

The bill for the care and treatment by the Marine-Hospital Service, of the seaman, M. Sylva, above referred to, at San Francisco, Cal., including his burial expenses, was subsequently forwarded to the Honorable the Secretary of State for approval, was by him approved to be paid out of "the fund for the relief of destitute American seamen in foreign ports," and thereupon referred to the Fifth Auditor of the Treasury Department for settlement. That officer deemed the charge not a proper one against said fund, and the case was finally referred to the Honorable the First Comptroller of the Treasury Department for decision, which has not been rendered. In the meantime Department Circular No. 77, dated June 23, 1875, had been issued under the act of March 3, 1875, instructing medical officers of the Marine-Hospital Service to admit sick and disabled "destitute American seamen," returned by United States consuls from foreign ports, to the benefits of the Service. Under the provisions of this circular an increasing number of this class of cases have occurred, and several destitute American seamen, returned from abroad, not entitled to relief from the marine-hospital fund, and having no other means of obtaining the care and treatment which their critical condition renders absolutely necessary, are now furnished relief by the Marine-Hospital Service. It is accordingly recommended that the attention of the Congress be called to the matter, in order that proper relief may be provided, and the seamen referred to admitted to hospital and cared for by the Marine-Hospital Service, the cost of their care to be paid out of the "appropriation for the protection of American seamen in foreign ports." It would seem obvious that the abandonment of these sick and destitute seamen as soon as they may have reached a port of the United States was not contemplated, but that the relief extended to them out of the appropriation made for that purpose should be continued, at least until they may have sufficiently recovered to be able to take care of themselves.

THE SICK-MARINERS' FUND OF THE DOMINION OF CANADA.

There is "levied and collected on every vessel arriving in any port in the provinces of Quebec, Nova Scotia, or New Brunswick, a rate or duty of two cents for every ton which such vessel measures," &c., which constitutes what is known as the "sick-mariners' fund," the object of which is to furnish care and treatment to sick and disabled seamen,

without distinction of nationality. Vessels of the burden of over one hundred tons are, however, not liable to the payment of this duty more than three times in one year. American vessels plying between New England and the British North American provinces accordingly contribute to the sick-mariners' fund of the Dominion of Canada, and American seamen receive relief from said fund when sick or disabled in the ports of Quebec, Nova Scotia, and New Brunswick.

The manner in which the relief is furnished, and the mode of procedure to obtain the benefits thereof, will be described in a future report, when it is hoped authoritative information shall have been received.

MEDICAL OFFICERS, ETC.

There are at present thirty-one surgeons and assistant surgeons of the Service serving at twenty-six ports; while at seventy-four other ports arrangements are made for the care of the Service-patients with private or municipal hospitals, which is satisfactory as respects the majority of these—no other course being practicable where the service of a port is small; but there are at least one-fourth of these ports at each of which it is believed an officer of the Service should be stationed. This would not add to the cost of the Service the amount of the salaries of nineteen additional medical officers, as might be at first supposed, as, at ports where medical officers are not stationed, the pay for medical attendance is counted as a part of the per-diem rate, which embraces the cost of board, nursing, and medicines. The most satisfactory results, in all respects, obtain at ports where medical officers are stationed, who give their undivided attention to the Service. This assertion is amply exemplified in the appointments since 1873, made to the general service and not to particular hospitals or stations, as was the custom prior to the year named. As long as the medical officers were appointed to local positions, and on the sole ground of political preference, there were those who naturally felt that the same influence which so readily procured their appointment would also be sufficient to secure to them immunity from a strict accountability for their official conduct as well as from a change of station. Such a condition of things could not but vitiate or destroy that respect for the regulations which is absolutely necessary to proper discipline. But this has fortunately been remedied, and the regulations now provide for the appointment and assignment of medical officers in a manner analogous and similar to that adopted for the Army and Navy. The promotions of assistant surgeons of the corps, on the ground of merit

and fitness, to vacancies which have recently occurred in the grade of surgeon, and original appointments to the grade of assistant surgeon only, and then only of those who have passed a successful examination into professional qualifications, has greatly encouraged the medical officers of the Service to diligence. This policy in respect of the medical corps of the Service has met with the hearty approval of the medical profession, as expressed through the medical press of this country and the many personal communications of encouragement which have been received from leading physicians. There would seem to be no question of the wisdom of these regulations, but the efforts of applicants for place to break them down have been so frequent and so powerful and embarrassing that had not the Presidents as well as the Secretaries of the Treasury firmly sustained the regulations these attempts could not have been successfully resisted. With the approval of the late Secretary of the Treasury, a bill was introduced in Congress at its last session providing proper remedial legislation, but failed to pass because of the all-absorbing question then occupying the attention of the Congress. It simply made statutory provision for what is already a regulation of the Treasury Department.

The late Secretary said in his annual report, (1876,) very forcibly: "The seamen whose earnings are taxed for the especial purpose of creating a fund for their relief when sick or disabled, are certainly entitled to the best medical and surgical skill, and manifestly none other should be employed. It is, therefore, suggested that legislative provision be made for the examination of medical officers of that Service similar to that now existing for medical officers of the Army and Navy."

MEDICAL EXAMINING-BOARDS, ETC.

Since the promulgation of the Regulations of 1873 the applications for appointment into the medical corps of the Marine-Hospital Service, received by the Supervising Surgeon-General, have numbered one hundred and seventeen, and eighty-eight of the applicants have been invited to present themselves before the medical examining-boards, of which twelve have from time to time been convened. The remaining applicants either withdrew their applications upon being informed that an examination was required, or failed to signify their desire to present themselves for examination, while a number are still upon the list of candidates to be invited when a board may be again convened. Of the candidates invited, forty-three reported for examination and twenty-seven passed successfully.

PORT INSPECTIONS

Have been made from time to time whenever deemed necessary, and the Supervising Surgeon-General has visited several of the largest relief-stations; and some of these more than once, while remote points have been visited by medical officers detailed for that purpose by the Supervising Surgeon-General, the most experienced officers stationed near the ports to be inspected being selected for this special duty. Experience has shown that these official inspections, besides correcting abuses that may exist, tend to prevent their recurrence, and to influence the hospital authorities at stations where the patients are cared for in private or municipal hospitals, so as to lead to marked improvement in the character of the accommodations furnished. The mode of extending relief, the manner in which the official records are kept and reports made, the evidence upon which applications for relief are granted, the rates charged, the relation of the average duration of treatment to the nature and gravity of the diseases and injuries treated, the character of the hospital accommodations, ventilation, food, nursing, medical attendance, and medicines, are the subjects chiefly examined into. In addition, the financial administration of the hospitals of the Service, and the preservation of the property—buildings, grounds, and furniture—are supervised. So great, in my opinion and experience, is the importance of these inspections that, if practicable, although the Service generally is now believed to be in a satisfactory condition, it is proposed to visit each relief-station at least once a year, which can be readily done without great expense, by detailing trusted and experienced officers, each to inspect the stations nearest to his port.

THE DIVISIONS OF THE SERVICE RELIEF-STATIONS INTO DISTRICTS.

To facilitate administration and supervision, and to fix responsibility, as well as for the purpose of a more specific understanding of the conditions and requirements of the Service, the relief-stations have been grouped into eight districts, based upon geographical and climatic conditions, the amount of relief furnished, the character of the shipping, and the facilities afforded for the ready performance of inspection-duties. For statistical purposes this division of the Service into relief districts was adopted in 1873, but experience has shown that it greatly aids in the inspection of the hospitals, the supervision of the relief furnished, and the enforcement of proper economic measures, to adopt fully the plan followed by the Light-House, Life-Saving, and other public services. The adoption of this system carries with it many

substantial advantages, by securing a more perfect organization, and yet requires no additional outlay on that account. The medical officer stationed at the principal port in each district will be required to familiarize himself with the conditions affecting the Service in his district, to inspect the other stations whenever necessary in the opinion of the Department, and to make full reports.

THE PRESENTATION OF FRAUDULENT CERTIFICATES BY PERSONS NOT ENTITLED TO THE BENEFITS OF THE MARINE-HOSPITAL SERVICE.

The medical officers stationed at ports on the Ohio river have reported frequent attempts to defraud the marine-hospital fund, made by persons who neither contribute to that fund nor follow the occupation of seamen or river boatmen, the method adopted being to present fraudulent papers upon which claims are based for admission to hospital. Again, the registers of patients treated furnish proof that persons, seamen and not seamen, have in the past succeeded in gaining admission to hospital, first at one port and then at another, spending most of their time in hospital. These persons sometimes display great skill in feigning disease, and, to avoid detection, change their names as often as they deem necessary—usually between each port. A circular was accordingly issued providing for the prosecution, under the law, of persons presenting fraudulent certificates, and a system of interchange of information between the medical officers at the several stations, giving the facts and descriptive memoranda in such cases, has been commenced, which, it is hoped, may prove effectual in protecting the fund against impostors.

MEDICAL INSPECTION IN THE LIFE-SAVING SERVICE.

The examination of keepers and crews of life-saving stations as to their physical condition, and their fitness for the trying duties they perform, has been wisely made a matter of regulation by the Department. To carry out this provision a medical officer of the Marine-Hospital Service is detailed from time to time to serve as a member of the board appointed for that purpose. In addition to a medical examination of the physique of the men, the officer detailed also instructs them in the method of restoring to life the apparently drowned.

Seamen rescued from wrecked vessels by the Life-Saving Service are, if requiring medical attention, cared for by the Marine-Hospital Service, or at the expense of the marine-hospital fund.

PHYSICAL EXAMINATION OF SEAMEN.

The expressed intent of the Congress in establishing the Marine-Hospital Service, 1798, was the encouragement and propagation of seamen. It is accordingly held that *bona-fide* seamen who become disabled from disease contracted, or from injuries received, in the line of duty, are entitled to the benefits of the Service without reference to the length of time they have been employed as such. Our hospital registers show, however, that a large number of the patients admitted are persons who were never physically fitted to be seamen, and who should never have been permitted on shipboard before the mast to endanger the safety of the vessels, and of the men and property carried in them. But unseaworthy sailors will continue to be employed until legal provision shall have been made for the physical inspection of the men by medical officers before shipping. The application of the remedy rests with Congress. If put into operation, it would work good to all concerned, especially to the shipping interests.^a

QUARANTINE, CHOLERA, AND YELLOW FEVER.

By invitation of the Centennial Medical Commission the Supervising Surgeon-General prepared a discourse on "The General Subject of Quarantine, with particular reference to Cholera and Yellow Fever," which was read before the section on sanitary science of the International Medical Congress of 1876.

The following conclusions arrived at were submitted:

bI. The supervision of ocean-travel ought to be directed to securing good sanitary conditions for vessels at all times, out of as well as in port.

II. A system of port-sanitation should be adopted and administered for each country or place, separately, and should be modified in particular cases by taking into account the liability of the port to infection, the period of incubation of the disease, the length of time consumed in the voyage, and the measures enforced by the vessel *en route*.

III. In some countries, the detention of passengers and crews of ships hailing from infected ports is warranted, but for such time only as is necessary to complete the period of incubation of cholera or of yellow fever, counting from the date of departure from an infected port, or of landing from an infected vessel; in no instance should passengers or sailors be held for observation on board an infected vessel, and such vessel should not be detained beyond the period required for inspection, and for thorough disinfection and cleansing.

IV. Recognizing the fact that the morbid causes of infectious diseases may sometimes elude the most vigilant sanitary supervision of shipping, the importance of wisely-directed internal sanitary measures can scarcely be overestimated.

V. As far as America is concerned, it is desirable that prompt and authoritative information should be had of the shipment of passengers or goods from districts infected with cholera or yellow fever, thereby insuring the thorough disinfection of infected articles.

VI. The endemic homes of cholera and yellow fever are the fields which give the greatest promise of satisfactory results to well-directed and energetic sanitary measures; and to this end an international sentiment should be awakened, so strong as to compel the careless and offending people to employ rational means of prevention.

^a See "The Safety of Ships, and of those who travel in them." By John M. Woodworth, M. D.—*Reports and Papers of the American Public Health Association, 1877. Vol. III, page 79.*

^b Transactions of the International Medical Congress, Philadelphia, 1876, page 1069.

After a lengthy discussion, these conclusions were adopted and reported to the congress as expressing the views of the section on the subject. This may be justly regarded as a happy result, in view of the diversity of opinion and practice in respect to quarantine, and inspires the hope that, sooner or later, the commerce of all countries may be relieved from the unnecessary restrictions imposed by quarantine; and not only the health of seamen, but the public health throughout the world at the same time promoted.

During the epidemic of yellow fever which visited the city of Savannah, Ga., in 1876, the medical officer of the Service on duty at that port was prostrated by the disease, and Assistant Surgeon Henry Smith cheerfully responded to the order of this office to supply his place, and, in addition to official duties, to render all possible assistance to the sick of that city. During the present season, Fernandina, Fla., was visited by a severe epidemic of yellow fever, and immediately on the breaking out of the disease, Surgeon Murray of this Service proceeded to the place and labored day and night, going from house to house, ministering to the wants of the stricken people. Too much praise cannot be given to such self-sacrificing labor.

THE HAND-BOOK OF MEDICINE AND SURGERY FOR SHIPS.

In a former report, under the head of measures for preserving the health of seamen, were pointed out the defects in the antiquated "directions" now in use, to accompany the medicine-chests carried by vessels, as required by law. It was proposed to furnish each vessel with a small hand-book of medicine and surgery, containing plain and reliable directions for proceeding with the sick or injured in the absence of a physician, to which may be added extracts from the law and regulations relative to the Marine-Hospital Service, the mode of obtaining relief, a list of ports where relief is furnished, directions for disinfecting vessels, and definite instructions relative to matters of ship-hygiene, with the view of preserving the health of seamen, and thereby reducing the demands upon the Marine-Hospital Service and lessening the dangers of travel by water. This book can be prepared by the Marine-Hospital Service without expense, except for paper, printing, and binding, which may properly be paid for out of the marine-hospital fund. It is believed that the Department has the authority to issue such a hand-book under the general law authorizing relief to sick and disabled seamen.

THE CENTENNIAL EXHIBITION.

It is deeply regretted that the Marine-Hospital Service, a peculiarly American institution, should have been prevented, by want of means, from taking part in an event eminently intended to illustrate the development of this country and its institutions. The display of models, &c., illustrative of the organization and character of this Service, and marking the stages in the development of hospital construction in America during the past century, could have been made both creditable and interesting.

THE PURVEYING OF MEDICAL STORES.

It is of the utmost importance that the medicines furnished the marine hospitals and the medical officers of the Service shall be of the best quality. Impure or deteriorated medicines are obviously inadmissible, deceiving the physician, hurtful to the patient, and increasing the cost of medical attendance by prolonging the duration of treatment. Great and constant vigilance should, therefore, be exerted to insure their purity. In the progress of the development of the Service a recommendation was accordingly submitted to the honorable the Secretary of the Treasury to adopt a plan similar to that which experience has demonstrated to be the only safe and proper system by which medical stores of ascertained purity can be obtained, viz., the purveying system. There is another reason why this system should be preferred to that heretofore prevailing, for when a contract to furnish medicines is awarded for a year, the periods of delivery and the quantities required being necessarily uncertain, the risks involved are such as to render it difficult for the bidders to offer favorable terms, whereas if proposals are invited to furnish fixed quantities, even if less, to be delivered at once, the bidders are enabled to offer more favorable terms. The chief gain, however, lies in the opportunity offered not only to thoroughly test the samples submitted by bidders, but to afterwards compare the supplies furnished with the samples, so as to keep the quality of the medicines under perfect control. My recommendation having been approved, the introduction of the purveying system is now fairly under way.

TIME-BOOK AND SCHEDULE.

It is believed that the Seaman's Time-book, introduced two years ago in accordance with the act of March 3, 1875, has greatly facilitated the proper collection of the hospital-dues, as the increased collections, notwithstanding the stagnation in commerce and shipping, can be ascribed

to no other cause. It is well received both by the customs officers and by masters of vessels, who are relieved by its use from a considerable amount of clerical labor.

Only one fine of ten dollars has been imposed for not keeping the Time-book in accordance with law.

The preparation of the "schedule of the average number of seamen required in the safe and ordinary navigation" of vessels of different tonnage, rig, and traffic prescribed by the above act of Congress to be prepared, will involve much labor, and, in my opinion, cannot be satisfactorily carried out in the absence of direct information from the masters and owners themselves, such as can be obtained only through an agent employed for that specific purpose.

REGULATIONS OF THE SERVICE.

Legislation relative to the Service, passed since the promulgation of the Regulations, in 1873, and the experience in all the details thereof gained during the past four years, render a revision of these Regulations necessary. Several of the provisions they contain have been repealed or modified by circular, &c., and many additions are needed to govern conditions and cases but imperfectly known at the time of the reorganization of the Service, or not then existing. It is proposed, however, to await the action of the present session of Congress in reference to the legislation asked or recommended for the promotion of the greater efficiency of the Service, before such a revision of the Regulations is undertaken, in order to obviate the probability of another change being required within a year.

DISPOSITION OF EFFECTS OF AMERICAN SEAMEN WHO DIE ON A VOYAGE, OR AT ANY PLACE OUT OF THE UNITED STATES.

In my report for the fiscal year ended June 30, 1875, recommendations were made relative to certain defects in the act of June 7, 1872, commonly known as the Shipping-Commissioners' Act. The remedies suggested have since been embodied in a bill to amend the above act by vesting in the Secretary of the Treasury the power of appointing the commissioners, who, under the proposed amended act, were to account to the Treasury Department for all receipts and expenditures. The receipts from effects of seamen dying out of port have not been increased since making the report above referred to.

The Committee on Commerce of the House of Representatives reported in favor of the bill amending the shipping act of 1872, but it was not further acted upon, probably for want of time.

NATIONAL PROTECTION OF SEAMEN.

The above-mentioned report of the House Committee on Commerce contains the following paragraphs relative to the necessity for providing by law for the protection of our seamen: "The well-known character of the sailor, and his essentially peculiar mode of life, have long ago led, in leading maritime nations, to the enactment of laws for his protection. * * * His occupation is pursued remote from society at large, and under discipline necessarily strict and to a great extent arbitrary. Released from his customary restraints, with his pay in his pocket, and a stranger among strangers, he naturally becomes liable to temptations and impositions, and the opportunities thus afforded attract a class of men who are to be found in every seaport ready to take advantage of his circumstances and make him their prey. * * * It was the common habit of a large class of men who infested the seaports to pander to the grossest appetites of the sailor, and taking advantage of his inexperience and the exhilaration naturally produced by his being ashore, and his freedom from restraint, to keep him in a state of excitement and intoxication, so that he became powerless in their hands. He was liable to be cheated and robbed of his wages to an extent that could not be practiced on any other class of men."

Seamen's Friend Societies exist in New York, Boston, Norfolk, San Francisco, and several other large shipping-ports, whose chief object is to protect the seamen against imposition, "to promote their moral and spiritual welfare, and, as an important means to this end, minister to their immediate temporal necessities, especially when shipwrecked and destitute." That these societies have a wide field before them is shown by the foregoing.

The improvidence and hardships of seamen are forcibly illustrated by cases constantly arising in the experience of the officers of the Marine-Hospital Service, and demonstrate the wisdom and necessity of establishing and maintaining that Service. The forty cents per month deducted from their wages, while they have employment, is willingly contributed by the seamen; and the knowledge that when sick they will be cared for, not as a matter of charity, but of right, by an institution sustained by themselves, may well be believed to afford substantial relief from the additional distress imposed upon those who, suffering from disease, are not so fortunate as to possess even the means of procuring shelter and food, much less the means of obtaining proper treatment and nursing. Owing to the nature of their avocation, seamen generally have no homes, few friends, and little sympathy expressed

for them. The excesses of which seamen are proverbially victims are largely due, not only to the hardships they are compelled to suffer, but also to the fact that few are willing to become sailors (under the existing condition of things affecting their well-being, on shipboard or on shore) whose disposition is such as to successfully resist the temptations by which they are sure to be met. Moreover, the seamen are, for obvious reasons, more than any other class of men, exposed to epidemic and contagious diseases.

The character of the relief furnished, and the mode of its administration, having been greatly improved since the reorganization of the Marine-Hospital Service, and its benefits rendered as readily available as is possible, its extension and growing popularity and usefulness may be fairly claimed as the results of the efforts put forth by this office and by the medical officers under its direction, who are devoting themselves to the health interests of the two hundred thousand seamen of the United States.

MARINE-HOSPITAL BUILDINGS AND GROUNDS.

The marine hospitals at present in use for the reception and treatment of patients of the Marine-Hospital Service exclusively, and maintained by the Service, are those located at Portland, Maine; Boston, Mass.; Key West, Fla.; Mobile, Ala.; Louisville, Ky.; St. Louis, Mo.; Chicago, Ill.; Detroit, Mich.; and San Francisco, Cal.

The marine hospital at Cleveland, Ohio, is leased for a term of years, and a medical officer of the Service furnishes medical attendance to the seamen, who are cared for in the hospital under the terms of the lease.

The marine-hospital building and grounds at Natchez, Miss., not being required for the purposes for which the institution was established in 1845-'52, has been sold, under an act of Congress approved August 15, 1876, and the building is to be reconstructed and devoted "to purposes of instruction for the benefit of the colored people of the United States." The amount received was five thousand dollars.

The title of the United States to the old marine-hospital property at Rincon Point, San Francisco, was relinquished by act of August 11, 1876, to the city and county of San Francisco, to be used solely for the purpose of a sailor's home, which has already been opened.

The marine-hospital property at New Orleans still remains unsold, being partially occupied by the local civil authorities as an asylum for colored insane, by authority of the Supervising Architect of the Treasury Department.

The hospital at Ocracoke Inlet, North Carolina, built in 1843-'47, and abandoned, as not required, is also still the property of the Service, and at present occupied by an officer of the Signal Service, who takes care of the building.

The marine hospitals at Mobile and Louisville, which had been leased, were, by direction of the Secretary of the Treasury, reoccupied—the former September 1, 1875, and the latter January 1, 1876.

There has been expended out of the marine-hospital fund during the two years ended June 30, 1877, for repairs to buildings and grounds, an aggregate amount of \$17,258 80.

In the marine hospital at Chelsea, Mass., the roof, windows, water-pipes and tank, and heating-apparatus have been repaired, a new fence erected; painting, plastering, and whitewashing has been done in portions of the building, ventilators reconstructed, and the store-room furnished with a new floor, &c.

At the hospital at Chicago, the walls, in a portion of the building, have been kalsomined, storm-doors have been constructed for protection against the wind and snow, the window-blinds have been repaired, a new roof has been put on the engine-house, and the heating apparatus repaired.

At Detroit, the water-pipes and furnaces have been repaired, and the inside walls kalsomined.

At Key West, the hospital building has been covered with a new roof and painted outside and inside, windows and floors repaired or replaced, and inside walls and ceilings plastered and whitewashed; a new wash-house, coal, and wood-house, two water-closets, with wharf for the same, bath and boat-house, and a dead-house, have been constructed.

At Louisville, the plumbing-work in the hospital has been entirely renewed, including water-pipes, water-closets, bath-tubs, &c.; the sewer-pipe, which was found so constructed as to ascend, instead of descend, from the hospital building to the main sewer, and necessarily became obstructed, has been taken up and relaid; the roof and gutters repaired, and a good deal of the wood-work (stairs, &c.) renewed.

At the Mobile hospital a new out-building, a fence, and two cisterns have been erected; the walls and ceilings in the hospital building have been plastered and whitewashed, &c.

At Portland, the roof of the marine-hospital building, the brick-work, conductors, furnaces, the iron fence, &c., have been repaired.

At St. Louis, the fence, the summer wards, water-tank, boiler and engine, plumbing, &c., have been kept in repair.

At San Francisco, the plumbing has been completed, a coal-shed and dead-house erected, the hospital buildings painted, water-pipes, ladders, &c., provided for protection against fire, tanks erected, and boilers repaired, &c.

All the repairs, &c., above enumerated were such as could not be delayed without injury to the property or embarrassment in the conduct of the hospitals.

With reference to the protection of the marine-hospital buildings at San Francisco from fire, the following regulations were issued for the guidance of the surgeon in charge: He was instructed to cause barrels (or half-barrels, as the case may be) of salted water to be placed on the covered ways, and to have the same kept constantly filled; to have buckets similarly filled put on the roofs, and permanent ladders erected in convenient situations. Perforated iron pipes have been arranged along the ridges of the roofs, which pipes are connected with the large reservoir, so that by turning a stop-cock at each building the roofs can be flooded with water at once. In addition, stop-cocks are provided, at convenient places, for attaching fire-hose, which has been furnished. The steward and employés are organized into a fire company, each member of which has some specific duty assigned him in case of fire, and they are drilled once each week, on a day fixed for that purpose. In this manner intelligent and prompt action is rendered possible, and, the steward being designated as lieutenant, effective work can be accomplished in an orderly way, even in the event fire should break out during the temporary absence of the medical officer in charge. The Babcock extinguishers, axes, (painted to prevent rusting,) and other fire-apparatus are directed to be kept in working order, and the employés instructed in reference to their use.

The collector of customs for the port of Chicago reports that the waves of Lake Michigan have washed away a portion of the marine-hospital grounds at Lakeview, and states that, in order to prevent the sand from being carried away by the wind or the lake, it will be necessary to drive piles along the lake-shore, construct a "breakwater," and top-soil the grounds; for which purposes an appropriation of \$6,000 will be required.

An act of Congress, approved June 22, 1874, provided for the sale of the marine-hospital building and grounds at Pittsburgh, Pa., on condition that a sufficient sum be received therefor to purchase a suitable new site, and erect thereon a hospital capable of accommodating the patients of the service at that port. The total amount received is \$57,718 75, which was deemed sufficient to establish a new hospital, and a

new site was selected by a commission appointed by the Secretary of the Treasury for that purpose, and purchased for \$30,000, leaving, as was at first supposed, \$27,718 75 available for erecting the hospital thereon. But the receipts from the sale in 1870 of about three acres of the grounds, amounting to \$20,550 96, which were at first decided by the honorable First Comptroller to be available, together with the receipts of the sale of the remaining portion of the property in 1874, still remain unexpended, having been covered into the Treasury to the credit of the Marine-Hospital Service, under the act of April 20, 1866, and that amount cannot now, in the Comptroller's opinion, be expended for the erection of the new hospital. I, therefore, beg to renew my recommendation that Congress be requested to authorize the transfer of the amount so as to enable the work upon the new hospital to be commenced.

BEDLOE'S ISLAND AS A SITE FOR A MARINE HOSPITAL FOR NEW YORK.

It is believed that, as a general rule, the policy of the Service should be to care for the seamen in hospitals maintained exclusively for their use, when the number of patients is large enough to warrant such arrangement. As respects New York there would seem to be no question on this point, as about one-tenth of the whole service is centered there. The need of a marine hospital at that port, and the unanimous sentiment of the shipping interests in reference to its speedy establishment, have been pointed out in former reports. Hitherto the chief obstacle in arriving at any definite plan has been the difficulty experienced in finding a healthful site within a practicable distance from the custom-house. The selection of Bedloe's Island, in the harbor of New York, now appears to be not only feasible, but most desirable. The island was designated by joint resolution of Congress No. 6, March 3, 1877, as the site for the colossal statue of "Liberty Enlightening the World," for which purpose it was evacuated by the United States troops in April last.^a The island is twelve acres in extent, and is two thousand nine hundred and fifty yards from the Battery.

The Army records, covering a period of several years, show it to have been the healthiest military post in New York harbor. Old Fort Wood occupies the front and highest portion of the island, and is the only proper site for the statue. Outside of and in the rear of the fort are a two-story barrack, nearly new, well ventilated, and fitted with baths, ranges, &c., a post hospital, and two cottages, which can be

^aApplication was immediately made to the War Department to occupy unused portions of the island for the purposes of a marine hospital, to which reply was made that the War Department is not prepared to turn over any of the property until the site of the statue is designated.

made immediately available for the accommodation of about one hundred patients. I beg to recommend that Congress be asked to authorize the Treasury Department to occupy the unused buildings outside of Fort Wood, and to make the necessary appropriation to build one new pavilion-ward on the land, and one floating-ward, and to purchase a steam-ambulance.

It is a remarkable fact, that while marine-hospitals have, in the past history of the Service, been erected at many places where no such buildings were at any time required, there has never been a marine hospital built at either New York, Philadelphia, or Baltimore; and at New Orleans a building was commenced in 1855, which was never finished, and is, moreover, entirely unfit for the purposes for which it was intended.

THE OFFICE OF THE SUPERVISING SURGEON-GENERAL.

The work annually performed in this office embraces the examination of about three thousand accounts, with from eighty thousand to one hundred thousand vouchers, covering about \$800,000, receipts and expenditures; a correspondence of about eight thousand letters received and sent; the supervision of the transactions of the Service at nearly one hundred and fifty different stations, at one hundred of which relief is furnished; the detail of the medical officers for duty; and the keeping of all necessary books and records to enable an intelligent administration of the Service.

The medical officers of the Service are accountable for the property of the Service committed to their care, and such records are kept as are necessary to carry out the object of the Regulations in this respect. The furnishing of the large hospitals of the Service with furniture, hospital clothing, subsistence, and medicines, and (during the past two years) the repairs, preservation, fuel, light, water, &c., for the marine-hospital buildings, require much of the time and attention of the Supervising Surgeon-General. At ports where there are no marine hospitals, arrangements are effected with local hospitals for the proper care of patients. About five thousand official reports relating to the Service are annually received, and requisitions made for funds to be remitted from time to time to the customs officers of the various ports, who act as disbursing agents of the Service. Books are kept showing the items of receipts and expenditures, collections of hospital-dues, supplies consumed, and relief furnished, and applications for relief, requiring the decision of this office, are received and acted upon. A register of the patients of the Service is also kept, and applications for the extension

of hospital-permits are received and examined. There are at present a chief clerk, eight clerks, and two messengers employed in this office, whose compensation is paid out of the marine-hospital fund. From the character and extent of the work performed, more than average ability and attention is required on the part of the clerical force.

STATISTICS

UNITED STATES MARINE-HOSPITAL SERVICE.

FINANCIAL AND ECONOMIC.

STATISTICS
UNITED STATES MARINE-HOSPITAL SERVICE,
Fiscal Years 1876 and 1877.

FINANCIAL AND ECONOMIC.

A.—Summary Statement of the Operations of the Service.

	1876.	1877.
Number of sick and disabled seamen treated in hospital.....	13,303	10,975
Number relieved not sent to hospital.....	3,505	4,200
Total number furnished relief.....	16,808	15,175
Actual cost of the Service during the year.....	a \$441,328 23	a \$367,620 28
Average cost for each seaman relieved, based upon total cost.....	26 25	24 22
Hospital dues collected within the year.....	b 352,207 22	b 368,873 40
Receipts from sales and leases of property, (under Sec. 3692, Revised Statutes).....	1,739 58	6,026 00
Repayments for care of seamen not contributors to the Marine-Hospital fund, (Sec. 4805, Revised Statutes, and act of March 3, 1875).....	5,593 58	4,598 10

a This includes the cost of relief furnished foreign seamen, and American seamen not contributors to the Marine-Hospital fund; and also the cost of repairs and preservation of the Government buildings occupied by the Service, and of fuel, light, and water for the same, which items have heretofore been paid out of the special appropriations made for public buildings generally, including the marine hospitals. These latter expenditures in the fiscal year 1876 amounted to \$44,306 52, and in the fiscal year 1877 to \$42,938 91.

b This includes the hospital-dues collected at foreign ports by United States consular officers, under Sec. 4586, Revised Statutes, of which \$5,439 67 was received into the Treasury and covered into the seamen's fund in the fiscal year 1876, and \$1,396 58 in the fiscal year 1877. Prior to this time, all hospital-dues collected under the section referred to, had been covered into the Treasury to the credit of the appropriation for the relief and protection of American seamen in foreign countries, which is expended under the direction of the Secretary of State.

NOTE.—In the office of the Supervising Surgeon-General, it is found practicable to keep each year's transactions of the Marine-Hospital Service separate, and to show the actual cost of the same; hence the "actual cost of the Service" for each year is given above. In the same manner the amount of hospital-dues reported collected, covers the actual collections for each year only. These figures differ, of course, from the receipts and expenditures as shown by the books in other offices in the Treasury Department, which refer to the amounts covered by warrants issued within each fiscal year. This would lead to a discrepancy which, upon comparing the totals for a series of years, is found to be apparent only, and not actual.

B.—Comparative Economic Exhibit.

The following tabular statement will serve to illustrate the results of the reorganization of the Marine-Hospital Service, and the appointment of a Supervising Surgeon-General in 1871. (Prior to 1868 no separate records were kept from which the actual cost of the Service for each fiscal year can be ascertained.)

Operations of the Marine-Hospital Service from July 1, 1867, to June 30, 1877.

Fiscal years.	Number of places at which relief was furnished.	Number of sick and disabled seamen furnished relief.	Average cost for each seaman relieved.
Prior to reorganization:			
1868.....	64	11,535	\$37 24
1869.....	64	11,356	36 98
1870.....	74	10,560	38 41
After reorganization:			
1871.....	72	14,256	31 78
1872.....	81	13,156	30 12
1873.....	91	13,529	31 22
1874.....	91	14,364	27 91
1875.....	94	15,009	27 99
1876.....	94	16,808	26 25
1877.....	100	15,175	24 22

C.—Statement, by quarters, of the Collections of Hospital Dues at Ocean, Lake, and River Ports, respectively, during the fiscal years 1876 and 1877.

Ports.	July, Aug., Sept., 1875 and 1876.	Oct., Nov., Dec., 1875 and 1876.	Jan., Feb., March, 1876 and 1877.	April, May, June, 1876 and 1877.	Total.
New England, and Northern and Middle Atlantic ports...	\$103,906 03	\$82,922 96	\$80,432 00	\$130,886 36	\$398,147 35
Southern Atlantic and Gulf ports	11,910 13	19,099 14	16,325 69	12,103 90	59,438 86
Pacific ports	20,048 92	21,184 40	18,526 21	19,376 31	79,135 84
Foreign				7,236 25	7,236 25
Total ocean ports	135,865 08	123,206 50	115,283 90	169,602 82	543,958 30
Lake ports	11,306 01	5,153 74	5,596 88	44,982 76	67,039 39
River ports	21,246 98	32,171 35	24,895 91	32,270 98	110,585 22
Grand total	168,418 07	160,531 59	145,776 69	246,856 56	721,582 91

D.—Statement of Annual Collections, Appropriations, and Expenditures on account of the Service from October 1, 1798, to June 30, 1874.

[The act of May 3, 1802, (2 Stat., 192,) provides that all hospital money collected shall be paid into the Treasury; and from June 30, 1802, when this provision went into effect, this statement is by warrants; prior to that date the statement is made from collectors' accounts.]

Year.	Collections.	Appropriations.	Available.	Expenditures.
1798 } 1801 }	<i>a</i> \$141,690 25	.....	\$141,690 25	<i>b</i> \$74,636 51
1802	<i>c</i> 47,635 09	.....	47,635 09	38,500 74
1803	33,766 47	.....	33,766 47	250 00
1804	54,933 21	.....	54,933 21	31,087 36
1805	58,210 98	\$1,000 00	59,210 98	<i>d e</i> 84,027 50
1806	57,928 20	.....	57,928 20	59,828 41
1807	66,820 01	.....	66,820 01	<i>f</i> 53,281 98
1808	61,474 47	.....	61,474 47	65,571 51
1809	36,515 44	.....	36,515 44	60,383 16
1810	<i>g</i> 74,192 42	.....	74,192 42	70,901 75
1811	53,715 20	.....	53,715 20	36,793 60
1812	54,586 34	.....	54,586 34	57,109 08
1813	42,421 46	.....	42,421 46	<i>h</i> 57,723 11
1814	21,789 58	20,000 00	41,789 58	53,376 87
1815	10,191 97	20,000 00	30,191 97	45,226 50
1816	28,374 74	20,000 00	48,374 74	43,651 55
1817	43,864 21	.....	43,864 21	<i>i</i> 82,555 68
1818	48,081 88	.....	48,081 88	<i>j</i> 81,749 28
1819	46,911 27	.....	46,911 27	87,230 62
1820	50,405 84	.....	50,405 84	84,097 61
1821	48,765 01	81,319 34	130,084 35	87,217 39
1822	48,569 99	50,000 00	98,569 99	66,845 48
1823	51,923 72	30,000 00	81,923 72	44,324 61
1824	53,062 91	.....	53,062 91	44,761 13
1825	51,877 52	<i>k</i> 12,875 00	64,752 52	47,861 77
1826	56,992 39	.....	56,992 39	<i>l</i> 54,938 51
1827	58,133 10	.....	58,133 10	51,236 98
1828	58,233 67	.....	58,233 67	<i>m</i> 89,137 42
1829	56,217 27	.....	56,217 27	69,259 61
1830	58,361 34	.....	58,361 34	63,562 28
1831	57,447 13	.....	57,447 13	68,996 96
1832	59,182 17	.....	59,182 17	65,563 98
1833	58,942 56	.....	58,942 56	76,877 87
1833	62,901 15	15,750 00	78,651 15	68,948 73

a Includes \$15,635 33 hospital money received from the Navy Department.
b Includes \$6,185 33 for purchase of Norfolk hospital.
c Includes \$2,500 hospital money received from the Navy Department.
d Includes \$14,842 34, cost of Charlestown hospital, at the port of Boston.
e Includes \$157 66 carried to surplus fund.
f Includes \$379 66 carried to surplus fund.
g Includes \$38,515 96 hospital fund received from Navy Department.
h Includes 1 cent carried to surplus fund.
i Includes \$6,500 expended for repairs of Norfolk hospital.
j Includes \$5,500, cost of site of Charleston (S. C.) hospital.
k Received from sale of hospital at Charlestown, Mass.
l Includes \$4,068, cost of site, &c., for marine hospital at Chelsea, Mass.
m Includes \$27,603 39, cost of Chelsea hospital.

D.—*Statement of Annual Collections, Appropriations, and Expenditures, &c.*—Continued.

Year.	Collections.	Appropriations.	Available.	Expenditures.
1834	\$64,532 98	.....	\$64,532 98	\$74,668 96
1835	66,621 77	\$25,000 00	91,621 77	86,668 43
1836	67,961 02	15,000 00	82,961 02	89,370 70
1837	27,021 24	175,000 00	202,021 24	97,935 75
1838	35,234 52	.....	35,234 52	109,229 59
1839	66,311 83	.....	66,311 83	121,653 31
1840	71,675 91	.....	71,675 91	130,561 07
1841	72,760 20	97,000 00	169,760 20	109,758 82
1842	72,429 36	46,500 00	118,929 36	100,112 57
1843, (half year)	37,417 18	58,500 00	95,917 18	49,430 86
1844	85,864 42	25,000 00	110,864 42	62,148 67
1845	88,074 34	25,000 00	113,074 34	168,016 20
1846	90,675 68	.....	90,675 68	68,678 70
1847	95,216 73	25,000 00	120,216 73	123,257 42
1848	97,989 26	12,000 00	109,989 26	140,995 50
1849	103,496 38	12,000 00	115,496 38	103,167 65
1850	106,437 49	15,000 00	121,437 49	162,379 67
1851	133,447 07	200,000 00	333,447 07	139,220 43
1852	134,393 26	200,000 00	334,393 26	203,115 23
1853	133,718 08	100,000 00	233,718 08	280,750 10
1854	146,576 31	.....	146,576 31	292,825 69
1855	148,733 43	200,000 00	348,733 43	345,987 46
1856	155,068 14	150,000 00	305,068 14	368,520 86
1857	167,325 29	250,000 00	417,325 29	354,053 90
1858	164,161 82	150,000 00	314,161 82	379,214 86
1859	178,195 59	150,000 00	328,195 59	349,890 36
1860	173,073 09	275,000 00	448,073 09	455,593 10
1861	155,172 43	175,000 00	330,172 43	308,918 13
1862	128,526 97	200,000 00	328,526 97	290,447 41
1863	118,307 74	200,000 00	318,307 74	198,933 60
1864	117,824 05	100,000 00	217,824 05	260,911 84
1865	128,656 30	150,000 00	278,656 30	348,472 82
1866	142,292 81	170,000 00	312,292 81	<i>a</i> 335,958 39
1867	231,596 91	200,000 00	431,596 91	<i>a</i> 415,580 53
1868	184,530 35	250,000 00	434,530 35	<i>a</i> 443,646 53
1869	176,957 95	200,000 00	376,957 95	<i>a</i> 391,296 89
1870	168,153 70	200,000 00	368,153 70	<i>a</i> 353,277 54
1871	293,592 14	250,000 00	543,592 14	<i>a</i> 437,493 86
1872	319,823 16	<i>b</i> 154,050 00	473,873 16	421,897 03
1873	333,003 03	125,000 00	458,003 03	398,778 69
1874	352,379 98	100,000 00	452,379 98	409,039 04

a The expenditures from 1866 to 1871, as represented in this statement, are less than the actual expenditures for those years by \$91,250 11, in consequence of various sums, aggregating that amount, received on account of sales of marine hospitals, having been credited as repayments.

b Includes \$4,080, being a part of the proceeds from the sale of the marine hospital at Vicksburg, Miss., sold by authority of the act of April 20, 1866.

E.—*Statement of the Marine-Hospital Fund from July 1, 1874, to June 30, 1877, as shown by the Books in the Office of the Register of the Treasury.*

Year ended June 30.	Unexpended balance on hand at commencement of the year.	Hospital dues and other receipts appropriated by statute.	Re-payments.	Aggregate available.	Expenditures by warrants issued during the year.	Unexpended balance remaining at the close of the year.
1875.....	\$329,977 87	\$438,893 78	\$9,867 09	\$778,738 74	\$414,257 69	\$364,481 05
1876.....	364,481 05	345,679 92	16,861 97	727,022 94	456,013 10	271,009 84
1877.....	271,009 84	372,465 70	16,027 29	659,502 83	384,422 57	275,080 26

F.—*Tabular Record of United States Marine-Hospital Buildings, from A. D. 1800 to close of fiscal year 1877.*

Location.	Purchased or com- menced.	Occupied.	Amount expended in 1876 and 1877.	Cost to date.	Condition or dispo- sition.	Proceeds of sales.
Norfolk, Va.....	1800	.....	.....	\$22,395 10	Sold, 1839.....	\$15,613 80
Newport, R. I.....					(a)	
Boston.....	1802	1804	.....	14,842 34	Sold, 1824.....	12,875 00
	2.....	1827	.....	32,168 06	Sold, 1867.....	54,803 38
	3.....	{ about } 1860	{ \$1,554 76	395,603 06	In use.....	.....
Charleston, S. C.....	{ 1815	{ 1834	.....	26,685 77	Sold, 1866 (b).....	9,500 00
	{ 1832	{				
New Orleans. { 1.....	1837	1849?	.....	122,772 70	Sold, 1866 (c).....	.....
2.....	1855		.....	530,090 84	Unfinished.....	.....
Mobile, Ala.....	d 1838	1843	765 01	56,104 72	In use.....	.....
Pittsburgh, Pa.....	1842	1851	.....	72,554 57	Sold.....	57,947 33
Louisville, Ky.....	e 1843	1852	3,003 88	101,456 35	In use.....	.....
Cleveland, Ohio.....	e 1844	1852	.....	122,831 03	In use.....	.....
Natchez, Miss.....	e 1845	1852	.....	66,755 00	(f)	5,000 00
Key West, Fla.....	1844	1845	1,539 85	35,972 71	In use.....	.....
Ocracoke, N. C.....	1843	1847	.....	9,227 07	Abandoned (g).....	.....
Paducah, Ky.....	1852	1852	.....	58,525 77	Burned, 1868.....	6,571 34
Napoleon, Ark.....	e 1855	1855	.....	62,290 83	Destroyed, 1868 (i).....	30 00
Chicago..... { 1.....	j 1849	1852	.....	64,070 98	Sold, 1864.....	132,000 00
2.....	1867	1873	1,167 49	423,246 08	In use.....	.....
Saint Louis, Mo.....	k 1850	1858	896 52	116,366 17	In use.....	.....
San Francisco, Cal. { 1.....	l 1851	1854	.....	231,871 10	Transferred, 1876..	.....
2.....	m 1874	1855	4,868 17	77,946 73	In use.....	.....
Evansville, Ind.....	1853?	1856	.....	73,078 56	Sold, 1867.....	10,507 11
Portland, Maine.....	1852	1859	672 81	123,553 59	In use.....	.....
Vicksburg, Miss.....	1853	1856	.....	67,775 16	Sold, 1870.....	20,257 52
Pensacola, Fla.....	(n)	.....	.....	1,052 96	.....	.....
Detroit, Mich.....	1855	1857	512 54	110,038 51	In use.....	.....
Cincinnati, Ohio.....	1856	(o)	.....	182,665 48	Sold, 1866.....	70,500 00
Burlington, Iowa.....	1856	1858	.....	29,996 84	Sold, 1867.....	6,000 00
St. Mark's, Fla.....	.....	1859	.....	25,758 00	Transferr'd, 1867 (p)	.....
Burlington, Vt.....	1855	(o)	.....	39,572 30	Sold, 1866.....	7,164 41
Wilmington, N. C.....	1857	(q)	.....	43,897 44	Sold, 1870.....	8,917 70
Galena, Ill.....	1857	1861	.....	48,797 58	Sold, 1868.....	6,321 08
Port Angeles, Wash. Ter..	(r)	.....	.....	.....	Sold, 1868.....	165 00
Total.....			14,981 03	3,304,704 80	.....	424,173 67

a Reported by the Secretary of the Treasury, February 16, 1802, to have been discontinued. No other record found.

b Reported as sold in 1866 for \$300, but the amount does not appear to have been received.

c Completion of the hospital building impracticable. Ordered sold, act March 3, 1873.

d First site selected in 1837. Abandoned on account of defective title.

e Sites selected by the medical board of the Army, 1837.

f Sold by act of Congress, approved August 15, 1876.

g Unoccupied and not required.

h From sale of land.

i Building and grounds washed away by the river.

j Site ceded by War Department. Hospital burned October 10, 1871, before the property was delivered.

k Site ceded by War Department.

l Transferred to city and county of San Francisco, for Soldiers' Home; act of Congress approved August 11, 1876.

m Site ceded by War Department. Work begun June, 1874. Opened in June, 1875.

n Work not commenced. Expenditure made from 1855 to 1858.

o Never occupied as a marine hospital.

p Transferred to the War Department.

q Never occupied as a marine hospital. Sold for \$20,100, to be paid in five equal instalments—only two received up to date.

r No record of the establishment of a marine hospital at Port Angeles, Washington Territory, has been found.

STATISTICS

UNITED STATES MARINE-HOSPITAL SERVICE.

MEDICAL AND SURGICAL.

COMMENTS ON THE MEDICAL AND
SURGICAL STATISTICS.

3 M H

COMMENTS ON THE MEDICAL AND SURGICAL STATISTICS EMBRACED IN THIS REPORT.

The number of "out-patients" of the Service is every year increasing, and the light cases finding their way to hospital are fewer. As usual the largest numbers of patients have been treated in the fall and winter months, from September to January, both in 1876 and 1877. The ratio of patients treated in the District of the Ohio was exceptionally great during the year 1876. The average duration of treatment in hospital was 29.3 days—the shortest ever reached for the whole service—the maximum for any district being 37.4 days in the Northern Atlantic District, and the minimum 23.8 days in the District of the Mississippi. In 1877 the average duration of treatment was 29.53 days, being longest in the District of the Pacific and shortest in the District of the Mississippi.

It was found impracticable to complete the tables of medical and surgical statistics for 1877 in time for publication in the present volume; but they will be inserted in the next report.

The tables for 1876, as those for previous years, show that a large number of the seamen coming under the care of the Marine-Hospital Service are permanently unfitted for duty as seamen, or nearly so. Over three hundred cases of phthisis, one hundred cases of diseases of the circulatory system, seventy-five cases of Bright's disease, forty-eight cases of hernia, eighty-eight cases of paralysis (including hemiplegia and paraplegia) are recorded; and over two thousand four hundred cases of malarial fevers, over two thousand cases of syphilis, (including *chancroid*,) and nearly one thousand four hundred cases of rheumatism, &c., also furnish a large number of unseaworthy men.

There were eighty-eight deaths from phthisis pulmonalis, twenty-five from heart disease, fifteen from Bright's disease, fifteen from small-pox, a like number from yellow fever, forty-four from remittent fever, thirty-three from pneumonia, and sixteen from dysentery.

The mortality rate among the hospital patients of the Service in 1876 was 3.25 per cent. less than any previous year for which the records show it. Twenty per cent. of all the deaths were from phthisis pulmonalis, 10 per cent. from remittent fever, 7.6 per cent. from pneumonia, and 6 per cent. from heart disease; these being the principal causes of mortality.

Of all the cases treated in hospital, 87.5 per cent. were diseases and 11.6 per cent. injuries. Of all the diseases treated, 59.5 were general diseases, syphilis and chancroid contributing over 18 per cent., ague and remittent fever nearly 21 per cent., and rheumatism nearly 12 per cent. The range and prevalence of the principal diseases do not appear to vary to any considerable extent from year to year.

STATISTICS

UNITED STATES MARINE-HOSPITAL SERVICE,

Fiscal Years 1876 and 1877.

MEDICAL AND SURGICAL.

For convenience of administration the Relief-Stations of the Service are classified into three classes according to their importance, and, geographically, they are also grouped into eight (8) districts. Relief-Stations of the first class are those where medical officers of the Service are in charge; second-class stations are those where the customs officers, acting as agents of the Marine-Hospital Service, are authorized to issue permits for relief, to be furnished in accordance with specific arrangements made by the Department; and third-class stations are all other stations, where, on account of the absence of a hospital, the infrequency of applications for relief, or other causes, no specific or continuous arrangement has been made by the Department in accordance with which relief may be extended.

I.—Table of Relief-Districts.

1.—NORTHERN ATLANTIC DISTRICT.

Stations of Class One.—Boston, Mass., and Portland, Maine.

Stations of Class Two.—Bangor, Maine; Bath, Maine; Belfast, Maine; Ellsworth, Maine; Hyannis, Mass.; Machias, Maine; Newport, R. I.; Providence, R. I.; Salem, Mass.; Rockland, Maine; and Vineyard Haven, Mass.

Stations of Class Three.—Bar Harbor, Maine; Barnstable, Mass; Booth Bay, Maine; Bristol, R. I.; Bucksport, Maine; Burlington, Vt.; Calais, Maine; Camden, Maine; Castine, Maine; Champlain, N. Y.; Chatham, Mass.; Cherryfield, Maine; Cohasset, Mass.; Deer Isle, Maine; Damariscotta, Maine; Duxbury, Mass.; Eastport, Maine; Edgartown, Mass.; Fall River, Mass.; Falmouth, Mass.; Gloucester, Mass.; Highgate, Vt.; Jonesport, Maine; Kennebunk, Maine; Lubec, Maine; Marblehead, Mass.; Nantucket, Mass.; New Bedford, Mass.; Newburyport, Mass.; North Haven, Maine; Plattsburg, N. Y.; Plymouth, Mass.; Portsmouth, N. H.; Provincetown, Mass.; Robbinston, Maine; Rockport, Mass.; Saco, Maine; St. Albans, Vt.; St. George, Maine; Scituate, Mass.; Searsport, Maine; Sedgwick, Maine; South Dennis, Mass.; Southwest Harbor, Maine; Sullivan, Maine; Swanton, Vt.; Thomaston, Maine; Vinal Haven, Maine; Waldoboro', Maine; Warren, R. I.; Wellfleet, Mass.; Wiscasset, Maine; and York, Maine.

2.—MIDDLE ATLANTIC DISTRICT.

Stations of Class One.—New York, N. Y., and Philadelphia, Pa.

Stations of Class Two.—Albany, N. Y.; Hartford, Conn.; New Haven, Conn.; New London, Conn.; Sag Harbor, N. Y.; Tuckerton, N. J.; and Wilmington, Del.

Stations of Class Three.—Bargaintown, N. J.; Bridgeport, Conn.; Bridgetown, N. J.; Camden, Pa.; Chester, Pa.; Delaware City, Del.; Greenport, N. Y.; Lambertton, N. J.; Lewes, Del.; Middletown, Conn.; Mystic, Conn.; Noank, Conn.; Newark, N. J.; New Castle, Del.; Patchogue, N. Y.; Perth Amboy, N. J.; Port Jefferson, N. Y.; Seaford, Del.; Somers Point, N. J.; Stonington, Conn.; Trenton, N. J.; Troy, N. Y.; and Westerly, R. I.

3.—SOUTHERN ATLANTIC DISTRICT.

Stations of Class One.—Baltimore, Md.; Norfolk, Va.; and Savannah, Ga.

Stations of Class Two.—Charleston, S. C.; Crisfield, Md.; Edenton, N. C.; Fernandina, Fla.; Georgetown, D. C.; Jacksonville, Fla.; New Berne, N. C.; Richmond, Va.; and Wilmington, N. C.

Stations of Class Three.—Alexandria, Va.; Annapolis, Md.; Beaufort, N. C.; Beaufort, S. C.; Brunswick, Ga.; Darien, Ga.; Eastville, Va.; Elizabeth City, N. C.; Fredericksburg, Va.; Georgetown, S. C.; Havre-de-Grace, Md.; Indian River, Fla.; Mayport, Fla.; New Smyrna, Fla.; Petersburg, Va.; St. Augustine, Fla.; St. Mary's, Ga.; Tappahannock, Va.; Town Creek, Md.; Washington, N. C.; and Yorktown, Va.

4.—DISTRICT OF THE GULF.

Stations of Class One.—New Orleans, La.; Galveston, Texas; Key West, Fla.; and Mobile, Ala.

Stations of Class Two.—Apalachicola, Fla.; Pensacola, Fla.; and Shreveport, La.

Stations of Class Three.—Brashears, La.; Brownsville, Texas; Cedar Keys, Fla.; Corpus Christi, Texas; El Paso, Texas; Manatee, Fla.; Pascagoula, Miss.; St. Mark's, Fla.; Shieldsboro', Miss.; and Tampa, Fla.

5.—DISTRICT OF THE OHIO.

Stations of Class One.—Louisville, Ky.; Cincinnati, Ohio; and Evansville, Ind.

Stations of Class Two.—Chattanooga, Tenn.; Nashville, Tenn.; Pittsburgh, Pa.; and Wheeling, W. Va.

Stations of Class Three.—Paducah, Ky., and Parkersburg, W. Va.

I.—*Table of Relief-Districts*—Continued.

6.—DISTRICT OF THE MISSISSIPPI.

Stations of Class One.—St. Louis, Mo.; and Cairo, Ill.

Stations of Class Two.—Bismarck, D. T.; Dubuque, Iowa; La Crosse, Wis.; Memphis, Tenn.; Pembina, D. T.; St. Paul, Minn.; and Vicksburg, Miss.

Stations of Class Three.—Burlington, Iowa.; Galena, Ill.; Moorhead, Minn.; Natchez, Miss.; and Omaha, Neb.

7.—DISTRICT OF THE GREAT LAKES.

Stations of Class One.—Chicago, Ill.; Buffalo, N. Y.; and Detroit, Mich.

Stations of Class Two.—Cleveland, Ohio; Du Luth, Minn.; Marquette, Mich.; Milwaukee, Wis.; Oswego, N. Y.; and Toledo, Ohio.

Stations of Class Three.—Cape Vincent, N. Y.; Cheboygan, Mich.; Dunkirk, N. Y.; East Saginaw, Mich.; Erie, Pa.; Escanaba, Mich.; Grand Haven, Mich.; Green Bay, Wis.; Kenosha, Wis.; L'Anse, Mich.; Mackinac, Mich.; Manitowoc, Wis.; Muskegon, Mich.; Niagara, N. Y.; Ogdensburg, N. Y.; Racine, Wis.; Rochester, N. Y.; St. Joseph, Mich.; Sandusky, Ohio; Sault Ste. Marie, Mich.; Sheboygan, Wis.; Superior, Wis.; and Tonawanda, N. Y.

8.—DISTRICT OF THE PACIFIC.

Station of Class One.—San Francisco, Cal.

Stations of Class Two.—Portland, Oregon; Port Townsend, W. T.; and Sitka, Alaska.

Stations of Class Three.—Astoria, Oregon; Empire City, Oregon; and San Diego, Cal.

II.—Statement, by Districts, of the Number of Patients Treated (in Hospital) each Month during the Year ended June 30, 1876.

District.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Total.....	1831	2016	2331	2328	2137	2307	2289	2056	2088	1889	1759	1538
North Atlantic.....	220	251	261	246	234	302	279	254	260	232	253	220
Middle Atlantic....	284	298	310	321	280	262	296	286	287	298	327	284
South Atlantic.....	158	194	251	322	278	286	326	304	297	239	208	157
The Gulf.....	253	223	258	265	226	296	266	233	233	221	166	125
The Ohio.....	269	318	379	416	418	439	417	349	363	298	222	207
The Mississippi.....	210	241	317	296	223	255	261	241	244	245	231	184
The Great Lakes.....	279	294	328	268	249	256	237	194	199	169	173	202
The Pacific.....	158	197	227	188	229	211	207	195	205	187	179	159

III.—Ratio of (Hospital) Patients Treated in each District same Year.

District.	Per cent. of total patients.	District.	Per cent. of total patients.
North Atlantic.....	11. 86—	The Ohio.....	17. 62—
Middle Atlantic.....	13. 85+	The Mississippi.....	13. 13+
South Atlantic.....	11. 84+	The Great Lakes.....	11. 41+
The Gulf.....	11. 03+	The Pacific.....	9. 21+

IV.—Average Duration of Treatment (in Hospital) in each District same Year.

District.	Average duration.	District.	Average duration.
	<i>Days.</i>		<i>Days.</i>
North Atlantic.....	33. 43	The Mississippi.....	23. 78
Middle Atlantic.....	31. 99	The Great Lakes.....	29. 99
South Atlantic.....	30. 66	The Pacific.....	30. 52
The Gulf.....	30. 43		
The Ohio.....	26. 07	General average.....	29. 34

V.—Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted

DISEASES AND INJURIES, &c.	NUMBER OF CASES admitted EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
General Diseases.												
SECTION A—Continued.												
<i>Febricula</i>								1	1	1		
Total cases.....												
Northern Atlantic District.....								1	1			
Middle Atlantic District.....										1		
<i>Yellow Fever</i>	11	3	23	8				1	2			3
Total cases.....												
Middle Atlantic District.....	1	2	13	3				1	2			3
Southern Atlantic District.....				1								
District of the Gulf.....	10	1	10	4								
<i>Ague</i>	147	196	318	299	141	116	82	67	78	70	82	90
Total cases.....												
Northern Atlantic District.....	10	21	16	20	6	4	11	3	3	3	8	5
Middle Atlantic District.....	16	21	31	31	13	10	7	5	7	9	16	7
Southern Atlantic District.....	17	25	38	55	11	18	11	12	13	7	9	12
District of the Gulf.....	42	41	58	56	23	39	23	13	18	21	8	47
District of the Ohio.....	18	31	74	63	50	26	20	28	26	11	16	12
District of the Mississippi.....	15	22	67	54	23	12	5	4	5	9	11	16
District of the Great Lakes.....	26	29	27	9	1	3	1		2	5	10	16
District of the Pacific.....	3	6	17	11	14	4	4	2	4	5	4	5
<i>Remittent Fever</i>	49	103	174	116	46	48	17	18	18	15	28	26
Total cases.....												
Northern Atlantic District.....	2	9	7	4	6	5		1		1		2
Middle Atlantic District.....	6	5	13	19	4	7	4	3	3		5	2
Southern Atlantic District.....	3	9	31	25	4	3	1	3	1	6	7	5
District of the Gulf.....	16	9	39	14	9	19	3	5	1	2	2	5
District of the Ohio.....	2	15	30	24	11	7	4	1	4	3	1	5
District of the Mississippi.....	8	32	38	24	4	7	1	2	4	2	3	1
District of the Great Lakes.....	7	11	16	5	7		4	3	5	1	9	5
District of the Pacific.....	5	13		1	1						1	1
<i>Simple Cholera</i>	2	3	1								1	1
Total cases.....												
Northern Atlantic District.....			1									
Middle Atlantic District.....	2	3										
District of the Gulf.....												1
District of the Ohio.....											1	
<i>Diphtheria</i>						4	1	2	2	1	1	
Total cases.....												
Northern Atlantic District.....						3	1	2	1			
Middle Atlantic District.....									1		1	
District of the Gulf.....						1				1		
<i>Mumps</i>						2	5	2	1		2	
Total cases.....												
Middle Atlantic District.....								1			1	
Southern Atlantic District.....						2	2				1	
District of the Gulf.....							1	1				
District of the Ohio.....							2					
District of the Mississippi.....									1			
<i>Influenza</i>					1			1	3	1	2	
Total cases.....												
Middle Atlantic District.....									2	1		
District of the Gulf.....					1				1			
District of the Great Lakes.....								1			2	
<i>Erysipelas</i>	11	2	4	4	11	13	9	6	14	6	7	4
Total cases.....												
Northern Atlantic District.....	5			1	1	2	1	1	4	1	2	
Middle Atlantic District.....	1	1	2	1	2	4	2	3	3		3	1
Southern Atlantic District.....	1			1	4	2	4	2	3	1	1	1

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.
1875.						1876.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
												General Diseases.
												SECTION A—Continued.
							1	1	1			<i>Febricula:</i>
							1	1				Total cases.....3
									1			Northern Atlantic District.
												Middle Atlantic District.
11	8	24	22				1	3	1		3	<i>Yellow Fever:</i>
1	3	14	12				1	3	1		3	Total cases.....51
			1									Middle Atlantic District.
10	5	10	9									Southern Atlantic District.
												District of the Gulf.
197	281	437	500	298	234	175	142	136	134	136	130	<i>Ague:</i>
												Total cases.....1,736
13	29	25	31	17	8	15	13	8	6	10	9	Northern Atlantic District.
22	35	39	43	31	18	19	12	12	13	23	16	Middle Atlantic District.
21	35	52	82	50	39	28	26	28	21	17	17	Southern Atlantic District.
58	67	87	89	55	64	51	36	30	39	28	24	District of the Gulf.
27	40	94	113	77	61	36	36	41	27	22	20	District of the Ohio.
16	32	84	95	45	29	16	13	8	14	17	21	District of the Mississippi.
37	35	36	26	5	4	3	1	3	7	13	17	District of the Great Lakes.
3	8	20	21	18	11	7	5	6	7	6	6	District of the Pacific.
74	135	244	232	123	80	56	34	33	31	40	46	<i>Remittent Fever:</i>
												Total cases.....683
3	10	14	9	9	11	4	1	1	1	1	3	Northern Atlantic District.
10	10	14	27	15	10	9	9	5	2	5	6	Middle Atlantic District.
3	10	37	44	21	7	6	5	4	8	10	11	Southern Atlantic District.
24	23	48	41	20	26	15	9	3	3	4	7	District of the Gulf.
5	17	39	49	28	12	7	1	5	6	4	6	District of the Ohio.
11	36	60	46	16	10	8	3	6	4	4	1	District of the Mississippi.
9	14	25	15	13	4	7	6	9	7	11	10	District of the Great Lakes.
9	15	7	1	1						1	2	District of the Pacific.
2	3	2	1									<i>Simple Cholera:</i>
												Total cases.....8
		1	1									Northern Atlantic District.
2	3	1										Middle Atlantic District.
											1	District of the Gulf.
										1		District of the Ohio.
					4	2	2	4	4			<i>Diphtheria:</i>
												Total cases.....11
					3	2	2	3	1			Northern Atlantic District.
								1	2	1	1	Middle Atlantic District.
					1				1			District of the Gulf.
					2	7	5	4	1	2	1	<i>Mumps:</i>
												Total cases.....12
							1	1		1	1	Middle Atlantic District.
					2	4	3	1		1		Southern Atlantic District.
						1	1	1				District of the Gulf.
						2						District of the Ohio.
								1	1			District of the Mississippi.
				1		1		3	2	2		<i>Influenza:</i>
												Total cases.....8
								2	2			Middle Atlantic District.
				1				1				District of the Gulf.
						1				2		District of the Great Lakes.
14	10	8	7	19	24	20	19	20	19	11	10	<i>Erysipelas:</i>
												Total cases.....94
7	4	2	1	2	4	3	3	5	6	3	3	Northern Atlantic District.
1	1	3	2	2	4	4	5	5	3	3	3	Middle Atlantic District.
1			1	8	7	6	6	4	1	2	2	Southern Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted

DISEASES AND INJURIES, &c.	NUMBER OF CASES <i>admitted</i> EACH MONTH.												
	1875.						1876.						
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
General Diseases.													
SECTION A—Continued.													
<i>Erysipelas</i> —Continued.													
District of the Gulf.....	1					2			1	1		1	
District of the Ohio.....	1	1	1		2	1	1		1				
District of the Mississippi.....	1					1	1			3		1	
District of the Great Lakes.....	1		1	1	2	1			2		1		
<i>Pyæmia</i>										1	1		
Total cases.....	2												
Northern Atlantic District.....											1		
District of the Gulf.....										1			
<i>Gangrene</i>			1			1							
Total cases.....	2												
Southern Atlantic District.....						1							
District of the Ohio.....			1										
SECTION B.													
TOTAL CASES.....	3,928	253	285	270	301	322	377	391	315	317	252	267	257
<i>Rheumatism</i>	85	91	92	78	114	142	149	114	135	89	92	75	
Total cases.....	1,371												
Northern Atlantic District.....	10	13	8	12	13	14	6	9	14	11	9	9	
Middle Atlantic District.....	9	12	17	9	17	9	11	18	13	16	19	11	
Southern Atlantic District.....	11	13	8	11	19	23	35	15	22	7	7	9	
District of the Gulf.....	8	9	4	5	8	18	8	5	14	10	7	4	
District of the Ohio.....	12	10	12	7	15	19	29	19	21	12	6	5	
District of the Mississippi.....	10	16	11	13	11	27	29	28	23	17	25	11	
District of the Great Lakes.....	20	13	17	9	17	23	14	12	12	7	7	14	
District of the Pacific.....	5	5	15	12	14	9	17	8	16	9	12	12	
<i>Gout</i>													
Total cases.....	1												
District of the Gulf.....													
<i>Chronic Osteo-Arthritis</i>			1	2					1	1	1	1	
Total cases.....	8												
Middle Atlantic District.....									1				
District of the Ohio.....													
District of the Pacific.....			1	2						1	1	1	
<i>Syphilis</i>	134	150	178	162	164	210	193	177	155	139	138	152	
Total cases.....	2,110												
Northern Atlantic District.....	13	19	16	15	13	19	15	13	16	7	24	16	
Middle Atlantic District.....	22	31	31	24	19	21	24	25	20	33	26	18	
Southern Atlantic District.....	8	10	21	24	22	20	28	20	23	14	11	17	
District of the Gulf.....	5	5	5	9	8	24	10	25	10	18	8	9	
District of the Ohio.....	21	33	35	33	38	42	47	38	33	22	25	29	
District of the Mississippi.....	26	18	19	21	18	33	19	17	27	15	14	24	
District of the Great Lakes.....	25	19	33	27	25	32	19	11	5	13	10	23	
District of the Pacific.....	14	15	18	9	21	19	31	28	21	17	20	16	
<i>Cancer</i>	2	2	1	1	1	4	1			2	2		
Total cases.....	18												
Northern Atlantic District.....						2				1	1		
Middle Atlantic District.....	1	1				1				1			
Southern Atlantic District.....		1									1		
District of the Gulf.....						1							
District of the Mississippi.....	1												
District of the Great Lakes.....			1		1		1						
District of the Pacific.....				1									
<i>Scurvy</i>	3	31		12	20	11	9				2	1	
Total cases.....	89												
Northern Atlantic District.....					1								

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES treated EACH MONTH.

1875.						1876.					
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
1	1	.....	.....	.....	2	2	1	1	1	1	1
1	2	2	.....	2	2	1	1	2	2	.....	.....
1	1	.....	1	1	1	2	2	1	4	1	1
2	1	1	2	4	4	2	1	2	2	1	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1
.....
.....	.....	1	1	1	1	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
.....	.....	1	1	1	.....	.....	.....	.....	.....	.....	.....
.....
574	582	598	583	629	672	806	751	459	610	577	537
200	175	173	162	192	249	285	258	272	217	182	156
22	24	19	20	22	28	22	24	29	26	20	18
24	23	27	21	28	24	26	31	31	24	34	27
23	26	23	22	27	39	53	40	36	24	17	19
32	21	12	12	13	24	24	14	23	22	11	10
26	18	20	18	25	31	41	36	37	28	17	16
29	26	22	24	24	37	47	56	52	47	46	26
29	25	26	23	28	44	42	34	37	25	13	21
15	12	24	22	25	22	30	23	27	21	24	19
1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
1	1	1	2	2	2	1	1	2	3	4	4
1	1	.....	.....	.....	.....	.....	.....	1	1	1	.....
.....	.....	1	2	2	2	1	1	1	2	3	4
292	293	317	317	326	375	400	396	373	316	268	288
26	31	31	25	31	40	38	33	38	26	41	36
57	56	55	58	46	46	46	50	55	60	26	45
27	29	35	42	42	45	58	58	56	39	34	30
11	12	8	17	18	29	28	35	30	31	27	22
51	53	58	59	70	70	81	74	72	56	48	53
43	37	34	36	29	44	37	43	45	37	29	35
47	44	61	52	53	60	53	41	27	23	24	32
30	31	35	28	37	41	59	62	50	44	39	35
4	5	5	5	3	6	7	5	.....	2	2	1
.....	.....	.....	.....	.....	2	2	1	.....	1	1	1
1	1	1	.....	.....	1	1	1	.....	1	.....	.....
.....	1	1	1	.....	.....	.....	.....	.....	.....	1	.....
2	2	2	2	2	2	2	2	.....	.....	.....	.....
1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	1	1	1	1	2	1	.....	.....	.....	.....
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....

DISEASES AND INJURIES, &c.

General Diseases.

SECTION A—Continued.

Erysipelas—Continued.

District of the Gulf.
 District of the Ohio.
 District of the Mississippi.
 District of the Great Lakes.

Pyæmia :

Total cases.....2

Northern Atlantic District.
 District of the Gulf.

Gangrene :

Total cases.....2

Southern Atlantic District.
 District of the Ohio.

SECTION B.

TOTAL CASES.....3,928

Rheumatism :

Total cases.....1,371

Northern Atlantic District.
 Middle Atlantic District.
 Southern Atlantic District.
 District of the Gulf.
 District of the Ohio.
 District of the Mississippi.
 District of the Great Lakes.
 District of the Pacific.

Gout :

Total cases.....1

District of the Gulf.

Chronic Osteo-Arthritis :

Total cases.....8

Middle Atlantic District.
 District of the Ohio.
 District of the Pacific.

Syphilis :

Total cases.....2,110

Northern Atlantic District.
 Middle Atlantic District.
 Southern Atlantic District.
 District of the Gulf.
 District of the Ohio.
 District of the Mississippi.
 District of the Great Lakes.
 District of the Pacific.

Cancer :

Total cases.....18

Northern Atlantic District.
 Middle Atlantic District.
 Southern Atlantic District.
 District of the Gulf.
 District of the Mississippi.
 District of the Great Lakes.
 District of the Pacific.

Scurvy :

Total cases.....89

Northern Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted

DISEASES AND INJURIES, &c.	NUMBER OF CASES admitted EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
General Diseases.												
SECTION B—Continued.												
<i>Diabetes</i>		2		4	2	1	1		1	1	3	2
Total cases.....18												
Northern Atlantic District.....		1		2			1		1		3	1
Middle Atlantic District.....					1	1				1		
District of the Gulf.....				1	1							
District of the Ohio.....				1								
District of the Mississippi.....												1
District of the Great Lakes.....		1										
Local Diseases.												
TOTAL CASES ....4,844	395	367	385	311	400	496	408	378	440	365	336	253
DISEASES OF THE BRAIN AND ITS } MEMBRANES	4	2		2	2	1	1	3		5	2	3
Total cases.....25												
<i>Encephalitis</i>					1	1	1					1
Total cases.....4												
Northern Atlantic District.....					1		1					1
Southern Atlantic District.....						1						
<i>Meningitis</i>	1			1						2		1
Total cases.....5												
Northern Atlantic District.....				1						2		1
District of the Pacific.....	1											
<i>Inflammation</i>								1		1		
Total cases.....2												
Northern Atlantic District.....										1		
District of the Pacific.....								1				
<i>Softening</i>	1							1		1		
Total cases.....3												
District of the Pacific.....	1							1		1		
<i>Congestive Apoplexy</i>	2				1			1		1	1	
Total cases.....6												
Northern Atlantic District.....	1				1							
Middle Atlantic District.....					1							
District of the Gulf.....							1					
District of the Ohio.....										1		
District of the Great Lakes.....	1										1	
<i>Vertigo</i>		1		1						2		
Total cases.....3												
Northern Atlantic District.....										1		
Southern Atlantic District.....				1								
District of the Ohio.....		1										
District of the Pacific.....										1		
<i>Sunstroke</i>		1										1
Total cases.....2												
Northern Atlantic District.....												1
District of the Mississippi.....		1										
OTHER DISEASES OF THE NERVOUS } SYSTEM	15	24	28	24	11	13	19	21	19	18	19	18
Total cases.....258												
<i>Spinal Meningitis</i>				1		1						
Total cases.....3												
District of the Gulf.....				1								
District of the Great Lakes.....						1						

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES *treated* EACH MONTH.

1875.

1876.

DISEASES AND INJURIES, &c.

July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
1	2	2	6	5	6	4	3	2	3	6	6
1	1	1	3	1	1	1	1	1	1	4	4
1			1	1	2	2	1	1	2	2	1
			1	1	1	1	1				
	1	1	1	1	1						1
705	736	651	645	724	891	904	839	1063	831	708	571
4	5	3	3	2	2	2	5	3	7	3	4
				1	1	1	1				1
				1		1	1				1
1	1	1	1						2		1
1	1	1	1						2		1
							1		1		
1	1	1	1				1		1		
1	1	1	1				1		1		
2	1			1	1	1	2	1	2	1	1
1	1										
				1	1	1	1				
1								1	1		
	1		1						2	2	
			1						1	1	
	1								1	1	
		1									1
		1									1
44	40	46	57	46	41	49	53	62	40	41	32
1	1		1	1	2	1					
1	1		1	1	1						

General Diseases.

SECTION B—Continued.

Diabetes:

Total cases.....18

Northern Atlantic District.

Middle Atlantic District.

District of the Gulf.

District of the Ohio.

District of the Mississippi.

District of the Great Lakes.

Local Diseases.

TOTAL CASES4,844

{ DISEASES OF THE BRAIN AND ITS
MEMBRANES.

Total cases.....25

Encephalitis:

Total cases.....4

Northern Atlantic District.

Southern Atlantic District.

Meningitis:

Total cases.....5

Northern Atlantic District.

District of the Pacific.

Inflammation:

Total cases.....2

Northern Atlantic District.

District of the Pacific.

Softening:

Total cases.....3

District of the Pacific.

Congestive Apoplexy:

Total cases.....6

Northern Atlantic District.

Middle Atlantic District.

District of the Gulf.

District of the Ohio.

District of the Great Lakes.

Vertigo:

Total cases.....4

Northern Atlantic District.

Southern Atlantic District.

District of the Ohio.

District of the Pacific.

Sunstroke:

Total cases.....2

Northern Atlantic District.

District of the Mississippi.

{ OTHER DISEASES OF THE NER-
VOUS SYSTEM.

Total cases.....258

Spinal Meningitis:

Total cases.....3

District of the Gulf.

District of the Great Lakes.

V.—*Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted*

DISEASES AND INJURIES, &c.	NUMBER OF CASES <i>admitted</i> EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Hemiplegia</i>	4	2	1	4			2	1	2	4	3	
Total cases	31											
Northern Atlantic District	1		1					1	2	1		
Middle Atlantic District	1			3			1			1	1	
Southern Atlantic District	1	1									1	
District of the Gulf	1	1										
District of the Ohio							1			1		
District of the Great Lakes				1						1	1	
District of the Pacific												
<i>Paraplegia</i>	1		4	1		3	1	1	1	2		
Total cases	17											
Northern Atlantic District			1	1		1						
Middle Atlantic District										1		
Southern Atlantic District										1		
District of the Gulf							1	1				
District of the Mississippi			1									
District of the Great Lakes	1		1									
District of the Pacific			1			2			1			
<i>Locomotor Ataxy</i>											1	
Total cases	3											
Middle Atlantic District											1	
District of the Great Lakes												
District of the Pacific												
<i>Tetanus</i>			1		1							
Total cases	2											
Northern Atlantic District					1							
Southern Atlantic District			1									
<i>Myelitis</i>			1	1								
Total cases	2											
District of the Gulf				1								
District of the Pacific			1									
<i>Spinal Hæmorrhage</i>												
Total cases	1											
District of the Pacific												
<i>Atrophy of the Optic Nerve</i>			1									
Total cases	1											
Middle Atlantic District			1									
<i>Paralysis</i>	3	2	2	3	2	1	5	6	3	3	5	3
Total cases	40											
Northern Atlantic District												1
Middle Atlantic District	1	2		1	1		2	1	1	1		1
Southern Atlantic District								1	2	1		
District of the Gulf				1	1							
District of the Ohio	1						1	1			3	
District of the Mississippi				1		1				1		
District of the Great Lakes			2				1	3			2	1
District of the Pacific	1						1					
<i>Neuritis</i>							1					
Total cases	1											
Southern Atlantic District							1					
<i>Epilepsy</i>	1	2	5	1	1	1		1	2	1	1	1
Total cases	19											
Middle Atlantic District			1		1							1
Southern Atlantic District						1						
District of the Gulf			1									
District of the Ohio		2	1	1						1		
District of the Mississippi	1								1			
District of the Great Lakes								1	1		1	
District of the Pacific			2									

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES treated EACH MONTH.

1875.

1876.

DISEASES AND INJURIES, &c.

July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
12	12	10	8	5	5	6	4	5	8	9	7
2	2	3	2	2	2	1	1	3	3	2	1
3	2	1	3	1	1	2	1		1	1	1
2	2	2	1							1	1
1	2	1									
1	1	1	2	2	2	2	2	2	3	4	3
3	3	2									
4	3	8	5	3	6	7	3	4	8	7	7
		1	2	2	3	3	1	1	1	1	1
2	2	3	2						1	1	1
									4	3	2
1						1	1	1			1
		1									
1	1	2	1	1	1	1	1	1	1	1	1
		1			2	2		1	1	1	1
2	2	2	1	1	1	1	1	1		1	
										1	
1	1	1	1	1	1	1	1	1			
1	1	1									
		1		1	1	1	1	1			
				1	1	1	1	1			
		1	2	2	2	2	2	1	1	1	1
			1	1	1	1	1				
		1	1	1	1	1	1	1	1	1	1
1	1	1									
1	1	1									
		1	1	1	1	1					
5	5	4	7	6	5	8	13	14	8	10	8
1	2	1	1	2	1	2	3	3	2	1	1
2	1						1	3	1	1	
			1	1					1	1	
1	1	1	1	1	1	2	2	2	2	4	3
			2	1	2	2	2	1	1	1	
		2	2	1	1	1	4	4	1	2	2
1	1					1	1	1			
						1	1				
3	3	8	5	4	4	4	4	6	3	2	1
		1		1	1	1	1	1			
				1	1	1	1	1	1	1	1
		1									
1	2	3	2	1					1		
1	1	1	1	1	1	1		1			
							1	2	1	1	
1		2	2	1	1	1	1	1			

Local Diseases.

Hemiplegia:

Total cases.....31

Northern Atlantic District.

Middle Atlantic District.

Southern Atlantic District.

District of the Gulf.

District of the Ohio.

District of the Great Lakes.

District of the Pacific.

Paraplegia:

Total cases.....17

Northern Atlantic District.

Middle Atlantic District.

Southern Atlantic District.

District of the Gulf.

District of the Mississippi.

District of the Great Lakes.

District of the Pacific.

Locomotor Ataxy:

Total cases.....3

Middle Atlantic District.

District of the Great Lakes.

District of the Pacific.

Tetanus:

Total cases.....2

Northern Atlantic District.

Southern Atlantic District.

Myelitis:

Total cases.....2

District of the Gulf.

District of the Pacific.

Spinal Hæmorrhage:

Total cases.....1

District of the Pacific.

Atrophy of the Optic Nerve:

Total cases.....1

Middle Atlantic District.

Paralysis:

Total cases.....40

Northern Atlantic District.

Middle Atlantic District.

Southern Atlantic District.

District of the Gulf.

District of the Ohio.

District of the Mississippi.

District of the Great Lakes.

District of the Pacific.

Neuritis:

Total cases.....1

Southern Atlantic District.

Epilepsy:

Total cases.....19

Middle Atlantic District.

Southern Atlantic District.

District of the Gulf.

District of the Ohio.

District of the Mississippi.

District of the Great Lakes.

District of the Pacific.

and Treated (in Hospitals) during the Year ended June 30, 1876--Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.
1875.						1876.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
				1								Local Diseases.
				1								<i>Convulsions:</i>
												Total cases.....1
												District of the Gulf.
										1		<i>Spasm of Muscle.</i>
										1		Total cases.....1
												Northern Atlantic District.
18	23	20	19	18	15	18	21	19	16	16	14	<i>Neuralgia:</i>
5	6	5	3	2	1	1	3	3	1	2	1	Total cases.....123
4	5	2	5	4	4	1	4	1	1	3	2	Northern Atlantic District.
1	1	1	1	1	1	2	3	3	3	4		Middle Atlantic District.
1		2	2		1	2	1		1	1	3	Southern Atlantic District.
2	3	2	2	3	2	5	6	5	5	2	4	District of the Gulf.
	1		1	1	2	2	2	1	2	1	2	District of the Ohio.
4	2	3	1	1	1	2	1	2	2	1	1	District of the Mississippi.
1	5	5	4	6	3	3	4	4	1	2	1	District of the Great Lakes.
												District of the Pacific.
									1			<i>Sciatica:</i>
									1			Total cases.....1
												District of the Pacific.
	3	4	2	1	1	2	4	3	2			<i>Mania:</i>
	1	1										Total cases.....7
	1	2	1	1	1	1	2	1	1			Northern Atlantic District.
	1	1	1				1	1	1			Middle Atlantic District.
						1	1	1				Southern Atlantic District.
												District of the Great Lakes.
	1	1	1	2	1	1	1					<i>Melancholia:</i>
					1	1	1					Total cases.....3
	1	1	1	2								Middle Atlantic District.
												Southern Atlantic District.
2	1											<i>Dementia:</i>
2	1											Total cases.....2
												District of the Gulf.
32	19	18	18	15	19	19	27	20	35	30	25	DISEASES OF THE EYE:
												Total cases.....141
3	5	6	8	4	6	4	16	14	12	6	7	<i>Conjunctivitis:</i>
1	2	1	2	2	5	2	3	2	2	1	1	Total cases.....38
						1	1	3	1	1	2	Northern Atlantic District.
			2	2			5	5				Middle Atlantic District.
							3					Southern Atlantic District.
1	1	2	2						2	2	2	District of the Gulf.
							1	1	4	2	1	District of the Ohio.
1	2	2	1		1	1	3	3	3			District of the Mississippi.
		1	1								1	District of the Great Lakes.
												District of the Pacific.
7	5	2	8	9	10	8	2	4	6	7	4	<i>Ophthalmia:</i>
				2	2	1	1	1	1	1		Total cases.....36
			2	1	2	1						Northern Atlantic District.
1					2	4			4	3	2	Middle Atlantic District.
3	1			2	3	2		2			1	Southern Atlantic District.
			3	2	1							District of the Gulf.
2	2	1		1								District of the Ohio.
1	2	1	1				1	1	1	3	1	District of the Mississippi.
			2	1								District of the Great Lakes.
												District of the Pacific.
1	2	2					1	1	2	2	1	<i>Keratitis:</i>
	1	1										Total cases.....5
												Middle Atlantic District.

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.	
1875.						1876.							
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.		
												Local Diseases.	
												<i>Keratitis</i> —Continued.	
											1	1	Southern Atlantic District.
1	1	1						1	1	2	1		District of the Ohio.
													District of the Great Lakes.
1													
									1	2	1		<i>Ulcer of the Cornea:</i>
													Total cases.....3
										1	1		Middle Atlantic District.
1													Southern Atlantic District.
									1	1			District of the Pacific.
	1												
	1												<i>Staphyloma:</i>
													Total cases.....1
													District of the Great Lakes.
3	4	4		1	1	2	3	4	5	5	4		<i>Iritis:</i>
													Total cases.....18
1	1								1	1			Northern Atlantic District.
										1	1		Middle Atlantic District.
				1	1	1	3	4	3	2	2		Southern Atlantic District.
						1							District of the Gulf.
2	1	2							1				District of the Ohio.
											1	1	District of the Mississippi.
	2	2											District of the Great Lakes.
											1		<i>Choroiditis:</i>
													Total cases.....1
											1		Middle Atlantic District.
1	1	1							1	1	1	1	<i>Choroido-Retinitis:</i>
													Total cases.....2
1	1	1							1	1	1	1	Middle Atlantic District.
1											1	1	<i>Neuro-Retinitis:</i>
													Total cases.....2
1											1	1	Middle Atlantic District.
1		1	1						1	1	1		<i>Amaurosis:</i>
													Total cases.....4
		1	1							1	1	1	District of the Gulf.
													District of the Great Lakes.
1									1				District of the Pacific.
									1	1	1		<i>Impaired Vision:</i>
													Total cases.....1
									1	1	1		District of the Pacific.
						1	1	2	2	1	1		<i>Cataract:</i>
													Total cases.....4
						1	1	2	2	1			Middle Atlantic District.
											1		District of the Pacific.
1	1	1											
													<i>Displacement of the Lens:</i>
													Total cases.....1
1	1	1											Middle Atlantic District.
1	1	1	1	1	1	1	1	2	2			1	<i>Glaucoma:</i>
													Total cases.....4
							1	1	1				Southern Atlantic District.
1	1	1	1	1	1	1		1	1			1	District of the Ohio.
				1	1				1	2	1		<i>Hemeralopia:</i>
													Total cases.....4
				1	1								Northern Atlantic District.
										1	1		Middle Atlantic District.
									1	1			Southern Atlantic District.

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.	
1875.						1876.							
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.		
													Local Diseases.
						1		1					<i>Endocarditis:</i>
						1		1					Total cases.....2
													District of the Ohio.
12	10	6	6	4	2	5	4	7	11	12	13	<i>Valve-Disease:</i>	
													Total cases.....46
4	2		1						1	2	1	Northern Atlantic District.	
1	3	1				2	1	4	6	6	6	Middle Atlantic District.	
3	1	1	1						1	1	3	Southern Atlantic District.	
				1	1	1	1	1					District of the Gulf.
1	1	1							1	1	1	District of the Great Lakes.	
3	3	3	3	3	2	2	2	1	2	2	2	District of the Pacific.	
3	2	1	1	2	1	1	1	1					<i>Hypertrophy:</i>
													Total cases.....7
				1									Northern Atlantic District.
					1								Middle Atlantic District.
1						1	1	1					District of the Gulf.
					1	1							District of the Great Lakes.
2	1												District of the Pacific.
											1	<i>Fatty Degeneration:</i>	
												Total cases.....1	
											1	District of the Gulf.	
				1	1								<i>Angina Pectoris:</i>
													Total cases.....1
				1	1								Southern Atlantic District.
1	1		1			1		1	1				{ <i>Palpitation and Irregularity of the</i> <i>Action of the Heart:</i>
1	1											Total cases.....4	
						1		1	1				Middle Atlantic District.
												District of the Gulf.	
				1								District of the Great Lakes.	
8	13	11	10	11	9	10	8	6	8	8	11	DISEASES OF THE BLOOD-VESSELS:	
												Total cases.....57	
3	2	2	2	3	2	3	2	2	3	2	3	<i>Aneurism:</i>	
												Total cases.....11	
1	1	2	2	2	2	2	2	2	2	2	3	Northern Atlantic District.	
						1						Middle Atlantic District.	
1	1			1								District of the Gulf.	
1												District of the Ohio.	
1												District of the Pacific.	
											1	<i>Phlegmasia Dolens:</i>	
												Total cases.....1	
											1	District of the Great Lakes.	
1	1	1	1	1	1								<i>Phlebitis:</i>
												Total cases.....1	
1	1	1	1	1	1								District of the Pacific.
2	4	5	5	4	2	2	2	3	3	3	6	<i>Varicose Veins:</i>	
												Total cases.....22	
		1	1										Middle Atlantic District.
			1	2	1								Southern Atlantic District.
				1								District of the Gulf.	
1	1		1					2	3	1	3	District of the Ohio.	
		2	3	1	3	2	2	2	1			District of the Great Lakes.	
1										2	2	District of the Pacific.	

V.—*Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted*

DISEASES AND INJURIES, &c.	NUMBER OF CASES <i>admitted</i> EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Œdema of Leg</i>				1								
Total cases.....	1											
Southern Atlantic District				1								
DISEASES OF THE ABSORBENT SYS- } TEM AND DUCTLESS GLANDS. }	1	4	3		2	2	5		2			1
Total cases.....	21											
<i>Inflammation</i>	1	1	1		2	1	4					1
Total cases.....	12											
Northern Atlantic District.....												1
Middle Atlantic District.....							1					
Southern Atlantic District.....			1									
District of the Gulf.....					2							
District of the Ohio.....	1						1					
District of the Great Lakes.....		1										
District of the Pacific.....						1	2					
<i>Suppuration</i>		1				1	1		2			
Total cases.....	5											
District of the Gulf.....		1				1	1		2			
<i>Chronic Enlargement</i>		1	1									
Total cases.....	2											
Southern Atlantic District.....		1										
District of the Ohio.....			1									
<i>Lymphatic Fistula</i>			1									
Total cases.....	1											
District of the Great Lakes.....			1									
<i>Goitre</i>		1										
Total cases.....	1											
Northern Atlantic District.....		1										
DISEASES OF THE RESPIRATORY SYS- } TEM	50	57	57	56	89	110	98	117	120	104	56	29
Total cases.....	1,001											
<i>Coryza</i>	1	1	1	1	4	1			2	2		
Total cases.....	14											
Southern Atlantic District.....					3					1		
District of the Gulf.....	1	1										
District of the Ohio.....												
District of the Mississippi.....				1	1	1			1	1		
District of the Great Lakes.....			1									
District of the Pacific.....									1			
<i>Ulceration of the Epiglottis</i>											1	
Total cases.....	1											
District of the Pacific.....											1	
<i>Laryngitis</i>	3	1	1		3	1	1	4	2	2		1
Total cases.....	20											
Middle Atlantic District.....	2				1			1				
Southern Atlantic District.....	1				1			1				1
District of the Gulf.....						1	1	1				
District of the Ohio.....		1			1							
District of the Mississippi.....								1		1		
District of the Great Lakes.....			1							1		
District of the Pacific.....									2			
<i>Bronchial Catarrh</i>	1	2		1	1	3	1	2	5			
Total cases.....	14											
District of the Ohio.....	1	2		1	1	3	1	2	3			

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.
1875.						1876.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
Local Diseases.												
												<i>Edema of Leg:</i>
												Total cases.....1
												Southern Atlantic District.
2	5	3	2	3	3	5	4	2	3	3	1	{ DISEASES OF THE ABSORBENT SYSTEM AND DUCTLESS GLANDS.
												Total cases.....21
2	2	1		2	3	4	3	1	2	3	1	<i>Inflammation:</i>
												Total cases.....12
												Northern Atlantic District.
												Middle Atlantic District.
												Southern Atlantic District.
												District of the Gulf.
												District of the Ohio.
												District of the Great Lakes.
												District of the Pacific.
												<i>Suppuration:</i>
												Total cases.....5
												District of the Gulf.
												<i>Chronic Enlargement:</i>
												Total cases.....2
												Southern Atlantic District.
												District of the Ohio.
												<i>Lymphatic Fistula:</i>
												Total cases.....1
												District of the Great Lakes.
												<i>Goitre:</i>
												Total cases.....1
												Northern Atlantic District.
108	117	102	105	141	193	212	209	251	217	140	77	{ DISEASES OF THE RESPIRATORY SYSTEM.
												Total cases.....1,001
2	1	2	1	5	5	4	1	2	3			<i>Coryza:</i>
												Total cases.....14
												Southern Atlantic District.
												District of the Gulf.
												District of the Ohio.
												District of the Mississippi.
												District of the Great Lakes.
												District of the Pacific.
												<i>Ulceration of the Epiglottis:</i>
												Total cases.....1
												District of the Pacific.
4	3	2	1	3	4	2	6	3	4	1	1	<i>Laryngitis:</i>
												Total cases.....20
												Middle Atlantic District.
												Southern Atlantic District.
												District of the Gulf.
												District of the Ohio.
												District of the Mississippi.
												District of the Great Lakes.
												District of the Pacific.
1	2	1	2	3	4	3	3	5	1			<i>Bronchial Catarrh:</i>
												Total cases.....14
												District of the Ohio.

V.—*Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted*

DISEASES AND INJURIES, &c.	NUMBER OF CASES <i>admitted</i> EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Bronchitis</i>	21	28	24	29	36	62	47	58	84	48	19	13
Total cases.....	493											
Northern Atlantic District.....		4	2	2	1	9	5	9	14	13	3	3
Middle Atlantic District.....	2	1	1	2	4	4	4	2	4	1	1	1
Southern Atlantic District.....	2	2		4	5	9	6	7	13	9	2	1
District of the Gulf.....	2	2	1	1	1	6	4	6	8	7	2	
District of the Ohio.....	3	4	5	4	9	16	12	16	22	4	2	3
District of the Mississippi.....	5	3	6	8	5	7	9	1	9	5	3	2
District of the Great Lakes.....	4	5	4	4	5	7	3	3	8	6	3	2
District of the Pacific.....	3	7	5	4	6	4	4	5	6	3	3	1
<i>Asthma</i>		2	1	2	3	1	1	4	3	2	2	2
Total cases.....	23											
Northern Atlantic District.....								1			2	2
Middle Atlantic District.....				1								
Southern Atlantic District.....				1	2			1	2			
District of the Gulf.....		1			1	1			1			
District of the Ohio.....			1					2				
District of the Mississippi.....										2		
District of the Great Lakes.....		1					1					
<i>Pneumonia</i>	10	8	8	14	29	20	33	39	29	36	22	8
Total cases.....	268											
Northern Atlantic District.....	1	3	2	3	10	8	3	12	4	12	7	4
Middle Atlantic District.....	1			2	3	1	5	4	1	4		1
Southern Atlantic District.....	1				2	1	4	2	6	3	2	1
District of the Gulf.....	1		1	1	1	1	2	3	2	2	1	
District of the Ohio.....	1	2	1	1	6	4	6	7	11	4	4	1
District of the Mississippi.....	1			4	2	3	12	4	5	8	4	1
District of the Great Lakes.....	4	3	1	3	5	1	1	7		2	4	
District of the Pacific.....			3			1				1		
<i>Abscess of Lung</i>	1						1					
Total cases.....	3											
Northern Atlantic District.....	1											
District of the Great Lakes.....							1					
<i>Gangrene of Lung</i>			1									
Total cases.....	1											
Northern Atlantic District.....			1									
<i>Congestion of the Lung</i>	1											
Total cases.....	1											
District of the Great Lakes.....	1											
<i>Hæmoptysis</i>	2	2	2	1	1	4	2	2	2		1	
Total cases.....	21											
Northern Atlantic District.....		2	2		1	3	1	1	1		1	
Southern Atlantic District.....							1		1			
District of the Gulf.....	1											
District of the Ohio.....				1								
District of the Mississippi.....	1											
District of the Pacific.....						1		1				
<i>Emphysema</i>						1					1	
Total cases.....	2											
Middle Atlantic District.....						1						
Southern Atlantic District.....											1	
<i>Chronic Pneumonic Phthisis</i>		2		1	1	1						
Total cases.....	5											
Middle Atlantic District.....		2		1	1	1						
<i>Pleurisy</i>	10	11	9	6	11	15	12	6	16	14	6	5
Total cases.....	126											
Northern Atlantic District.....	3	2	2	2		2				2		1
Middle Atlantic District.....	1	1			1	3	1	1		1	1	1

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.
1875.						1876.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
45	49	51	49	65	98	100	98	130	101	50	30	Local Diseases.
2	4	3	4	3	9	12	16	19	21	12	8	<i>Bronchitis:</i>
6	4	3	2	5	8	8	5	8	3	1	2	Total cases.....493
3	4	2	5	8	13	16	15	20	18	8	5	Northern Atlantic District.
5	3	3	2	2	8	7	9	10	13	8	1	Middle Atlantic District.
9	10	10	8	14	24	23	24	32	16	4	4	Southern Atlantic District.
8	6	10	10	13	13	14	13	19	10	6	2	District of the Gulf.
6	7	8	7	8	12	9	7	13	13	6	6	District of the Ohio.
6	11	12	11	12	11	11	9	9	7	5	2	District of the Mississippi.
.....	2	2	4	4	3	2	5	7	7	7	2	District of the Great Lakes.
.....	.....	.....	.....	.....	.....	.....	1	1	.....	2	2	District of the Pacific.
.....	1	1	1	1	2	.....	1	2	2	1	.....	<i>Asthma:</i>
.....	1	1	1	1	.....	.....	2	2	2	2	.....	Total cases.....23
.....	.....	.....	.....	.....	.....	1	1	1	.....	.....	.....	Northern Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Middle Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southern Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Gulf.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Ohio.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Mississippi.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Great Lakes.
22	17	18	24	41	44	59	68	72	68	56	28	<i>Pneumonia:</i>
3	3	4	6	13	17	12	17	16	19	19	11	Total cases.....268
1	1	.....	2	4	3	7	7	3	4	2	1	Northern Atlantic District.
3	3	2	.....	2	3	5	6	12	9	8	3	Middle Atlantic District.
1	.....	2	3	3	2	3	4	3	3	3	2	Southern Atlantic District.
3	3	3	2	8	10	14	12	19	17	10	4	District of the Gulf.
2	.....	.....	4	5	4	14	13	11	10	8	6	District of the Ohio.
7	6	3	4	6	4	3	9	8	5	6	1	District of the Mississippi.
2	1	4	3	.....	1	1	.....	.....	1	.....	.....	District of the Great Lakes.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Pacific.
2	2	.....	.....	.....	.....	1	1	1	.....	.....	.....	<i>Abscess of Lung:</i>
1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Total cases.....3
1	1	.....	.....	.....	.....	1	1	1	.....	.....	.....	Northern Atlantic District.
.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	District of the Great Lakes.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	<i>Gangrene of Lung:</i>
.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	Total cases.....1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Northern Atlantic District.
1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	<i>Congestion of the Lung:</i>
1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Total cases.....1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Great Lakes.
4	5	6	5	3	6	7	6	2	1	1	1	<i>Hæmoptysis:</i>
1	3	5	4	2	5	5	4	1	1	1	1	Total cases.....21
.....	.....	.....	.....	.....	.....	1	1	1	.....	.....	.....	Northern Atlantic District.
1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southern Atlantic District.
1	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	District of the Gulf.
1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Ohio.
.....	.....	.....	.....	.....	1	1	1	.....	.....	.....	.....	District of the Mississippi.
.....	.....	.....	.....	.....	.....	1	1	1	.....	1	.....	District of the Pacific.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	<i>Emphysema:</i>
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Total cases.....2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Middle Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southern Atlantic District.
.....	2	2	1	2	3	2	2	1	1	.....	.....	<i>Chronic Pneumonic Phthisis:</i>
.....	2	2	1	2	3	2	2	1	1	.....	.....	Total cases.....5
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Middle Atlantic District.
15	22	17	16	14	23	29	18	25	29	18	13	<i>Pleurisy:</i>
4	6	4	5	1	3	2	1	.....	2	1	2	Total cases.....126
1	1	1	.....	1	4	4	5	2	1	2	2	Northern Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Middle Atlantic District.

V.—*Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted*

DISEASES AND INJURIES, &c.	NUMBER OF CASES <i>admitted</i> EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases												
<i>Pleurisy</i> —Continued.												
Southern Atlantic District.....					1			1	2	1		
District of the Gulf.....	1				1	2	1		3			
District of the Ohio.....	1	1		1	1		1	2	3	3	1	
District of the Mississippi.....	2	5	4	3	6	6	9	1	5	6	3	1
District of the Great Lakes.....	1	1							1	1		2
District of the Pacific.....	1	1	3		1	2		1	2		1	
<i>Chronic Pleurisy</i>						1					1	
Total cases.....	4											
District of the Ohio.....						1					1	
<i>Empyema</i>											1	
Total cases.....	1											
Northern Atlantic District.....											1	
<i>Hydrothorax</i>				1					1		2	
Total cases.....	4											
District of the Ohio.....				1								
District of the Mississippi.....											2	
District of the Pacific.....									1			
DISEASES OF THE DIGESTIVE SYSTEM.	136	117	123	77	114	137	109	96	79	80	98	68
Total cases.....	1, 317											
<i>Stomatitis</i>	2				1		1					
Total cases.....	4											
District of the Mississippi.....							1					
District of the Great Lakes.....	2											
District of the Pacific.....					1							
<i>Abscess of Cheek</i>												
Total cases.....	1											
Northern Atlantic District.....												
<i>Ulcerated Throat</i>	1			1				1				
Total cases.....	3											
Northern Atlantic District.....	1							1				
District of the Ohio.....				1								
<i>Quinsy</i>		2	1			1		1			1	
Total cases.....	6											
Northern Atlantic District.....											1	
Southern Atlantic District.....		2										
District of the Ohio.....								1				
District of the Great Lakes.....			1									
District of the Pacific.....						1						
<i>Tonsillitis</i>	3		4	1	5	7	9	3	1	5	2	1
Total cases.....	42											
Northern Atlantic District.....	1		1		2	4	4	1			1	
Middle Atlantic District.....							1	1	1	3	1	
Southern Atlantic District.....				1		2	1	1		1		
District of the Gulf.....					2	1						1
District of the Ohio.....	1		1		1							
District of the Mississippi.....	1		1				1					
District of the Great Lakes.....			1				2					
District of the Pacific.....										1		
<i>Enlarged Tonsils</i>					1	1						
Total cases.....	2											
Northern Atlantic District.....					1							
Middle Atlantic District.....						1						
<i>Pharyngitis</i>	3	1	1	1	3	3	3	3	2	4	1	2
Total cases.....	28											
Northern Atlantic District.....	1					1						

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES *treated* EACH MONTH.

1875.

1876.

DISEASES AND INJURIES, &c.

July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
												Local Diseases.
2	1	1	1	1	1	1	1	4	3	1	1	<i>Pleurisy</i> —Continued.
1	1			1	2	3	1	4	2	1	1	Southern Atlantic District.
3	3		1	2		1	3	4	6	2	1	District of the Gulf.
2	6	6	7	7	10	16	5	7	12	9	4	District of the Ohio.
1	2	2	1					1	1	1	2	District of the Mississippi.
1	2	3	1	1	3	2	2	3	2	1	1	District of the Great Lakes.
												District of the Pacific.
2	1				1	1				1		<i>Chronic Pleurisy</i> :
2	1				1	1				1		Total cases .....4
												District of the Ohio.
										1		<i>Empyema</i> :
										1		Total cases .....1
										1		Northern Atlantic District.
			1	1	1	1	1	2	2	2	2	<i>Hydrothorax</i> :
												Total cases .....4
			1	1	1	1	1	1	1			District of the Ohio.
								1	1	2	2	District of the Mississippi.
												District of the Pacific.
219	207	180	147	181	231	209	187	167	173	133	114	DISEASES OF THE DIGESTIVE SYSTEM:
												Total cases .....1,317
2	1			1		1						<i>Stomatitis</i> :
						1						Total cases .....4
2	1											District of the Mississippi.
				1								District of the Great Lakes.
												District of the Pacific.
1												<i>Abscess of Cheek</i> :
1												Total cases .....1
												Northern Atlantic District.
1	1	1	1	1			1					<i>Ulcerated Throat</i> :
1	1	1					1					Total cases .....3
			1	1								Northern Atlantic District.
												District of the Ohio.
	2	1			1	1	1			1		<i>Quinsy</i> :
										1		Total cases .....6
	2											Northern Atlantic District.
							1					Southern Atlantic District.
		1										District of the Ohio.
					1	1						District of the Great Lakes.
												District of the Pacific.
4	1	5	4	6	11	11	7	5	6	6	1	<i>Tonsillitis</i> :
1		1	1	2	5	5	3	1		1		Total cases .....42
						1	1	1	4	3		Northern Atlantic District.
1			1	1	2	2	2	2	1	1		Middle Atlantic District.
				2	3						1	Southern Atlantic District.
1		1		1	1							District of the Gulf.
1	1	2	1			1						District of the Ohio.
		1	1			2	1	1		1		District of the Mississippi.
									1			District of the Great Lakes.
												District of the Pacific.
				1	2	1						<i>Enlarged Tonsils</i> :
					1							Total cases .....2
				1	1							Northern Atlantic District.
					1	1						Middle Atlantic District.
4	3	1	2	3	2	6	2	5	4	3	2	<i>Pharyngitis</i> :
1					1	1						Total cases .....28
												Northern Atlantic District.

and Treated (in Hospitals) during the year ended June 30, 1876—Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.
1875.						1876.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
												Local Diseases.
												<i>Pharyngitis</i> —Continued.
1	1		1			2			2	1	1	Middle Atlantic District.
				1	1	2		2				Southern Atlantic District.
				1						1		District of the Gulf.
1	1	1		1								District of the Ohio.
			1									District of the Mississippi.
1	1					1	2	3	2	1	2	District of the Great Lakes.
												District of the Pacific.
			1			1	1			2	2	<i>Salivation</i> :
												Total cases.....5
										2	2	Southern Atlantic District.
							1					District of the Gulf.
			1			1						District of the Great Lakes.
9	5	4	2	1	3	5	1	9	9	3	5	<i>Gastritis</i> :
												Total cases.....37
3		1	2					3	7	1	1	Northern Atlantic District.
1	1	1						1	1	2	4	Middle Atlantic District.
1						1	1	1				Southern Atlantic District.
1	2	1			1	1		2	1			District of the Gulf.
						1						District of the Ohio.
1	1	1		1	1	1						District of the Great Lakes.
2	1				1	1		2				District of the Pacific.
							1	1			1	<i>Hæmatemesis</i> :
												Total cases.....2
							1	1				Northern Atlantic District.
											1	District of the Gulf.
			1	1	1	1						<i>Dilatation of Stomach</i> :
												Total cases.....2
			1	1	1	1						District of the Mississippi.
21	23	22	13	16	13	17	14	9	9	11	10	<i>Dyspepsia</i> :
												Total cases.....100
5	3	3	4	5	1	3	3	1	1	3	2	Northern Atlantic District.
3	5	6	2	1		1	3			2	2	Middle Atlantic District.
	1	3			1	1				1	1	Southern Atlantic District.
2	2								1		1	District of the Gulf.
4	4	4	2	3	6	10	5	3	3	1	2	District of the Ohio.
2	2			2			2	3	2	1		District of the Mississippi.
2	2	2	1		2	1		1	2	2	1	District of the Great Lakes.
3	4	4	4	5	3	1	1	1		1	1	District of the Pacific.
3	2	1			1	1					1	<i>Gastrodynia</i> :
												Total cases.....5
											1	Northern Atlantic District.
1	1	1			1	1						Middle Atlantic District.
1	1											District of the Gulf.
												District of the Ohio.
4	4	3	4	3	2	2	1	1	2	2	2	<i>Enteritis</i> :
												Total cases.....17
2	3	1	1	1		1						Northern Atlantic District.
1												Middle Atlantic District.
					1	1						Southern Atlantic District.
		1	1						1	1	1	District of the Gulf.
1	1											District of the Great Lakes.
		1	2	2	1		1	1	1	1	1	District of the Pacific.
1		1							1			<i>Typhlitis</i> :
												Total cases.....3
1		1							1			District of the Gulf.

V. —*Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted*

DISEASES AND INJURIES, &c.	NUMBER OF CASES <i>admitted</i> EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Dysentery</i>	23	32	25	25	41	39	19	26	16	20	19	17
Total cases.....	318											
Northern Atlantic District.....	3	5	5	4	2	1				3	4	1
Middle Atlantic District.....	1	3	3	1	2			4	4	3	1	
Southern Atlantic District.....	1	2	2	5	2	2	2	3	2	1	1	1
District of the Gulf.....	5	2	1	1	2	5	2	3	3	1	3	2
District of the Ohio.....	6	9	4	7	26	24	4	10	5	7	4	7
District of the Mississippi.....	6	7	7	6	6	6	7	3	2	5	5	4
District of the Great Lakes.....	1	4	2	1	1	1	2				1	1
District of the Pacific.....			1				2	3				1
<i>Obstruction of Intestine</i>				1			1	1				
Total cases.....	3											
Southern Atlantic District.....							1	1				
District of the Ohio.....				1								
<i>Stricture of Intestine</i>										1		
Total cases.....	1											
Middle Atlantic District.....										1		
<i>Hernia</i>	5	5	6	4	4	4	6	4	2	2	3	3
Total cases.....	48											
Northern Atlantic District.....	2	1		1	2	2	1				2	1
Middle Atlantic District.....				1						1		
Southern Atlantic District.....	1		2	1	1	1	2	1			1	1
District of the Gulf.....		2					2	1		1		
District of the Ohio.....				1								
District of the Mississippi.....	2	1	1		1		1	1				1
District of the Great Lakes.....		1						1	1			
District of the Pacific.....			3			1			1			
<i>Tænia Solium</i>	1									1		2
Total cases.....	4											
Middle Atlantic District.....										1		
Southern Atlantic District.....												2
District of the Mississippi.....	1											
<i>Diarrhœa</i>	53	43	40	22	30	44	36	33	21	18	26	18
Total cases.....	407											
Northern Atlantic District.....	4	4	3	1	2	2	1	3	1		3	2
Middle Atlantic District.....	11	7	4	3	1	5	5	1	2	1	5	3
Southern Atlantic District.....	3	2	4	1	2	2	6	5	4	1	1	
District of the Gulf.....	5		2	4	6	9	5	3		4	1	
District of the Ohio.....	14	14	7	6	9	19	14	15	6	5	4	7
District of the Mississippi.....	9	9	16	3	7	7	4	4	4	4	6	5
District of the Great Lakes.....	5	7	4	4	3			1	4	3	6	
District of the Pacific.....	2						1	1				1
<i>Colic</i>		1		1	1	1		1	1	1		
Total cases.....	8											
Middle Atlantic District.....								1				
Southern Atlantic District.....		1		1	1				1	1		
District of the Mississippi.....												
District of the Great Lakes.....						1						
<i>Constipation</i>		1	1		1	2	4	1	3	2	4	
Total cases.....	19											
Northern Atlantic District.....		1						1				
Middle Atlantic District.....							1					
Southern Atlantic District.....						1	2			1	1	
District of the Gulf.....						1				1		
District of the Mississippi.....			1		1				1		2	
District of the Great Lakes.....							1		1			
District of the Pacific.....									1		1	

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.
1875.						1876.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
39	45	46	34	58	70	52	44	40	41	38	32	Local Diseases.
4	6	8	4	4	3	3			3	6	4	<i>Dysentery:</i>
2	4	4	2	3	1	1	4	7	6	2	1	Total cases.....318
3	3	3	5	6	3	3	6	5	4	3	1	Northern Atlantic District.
8	5	6	1	3	6	7	4	5	6	6	4	Middle Atlantic District.
10	13	8	10	33	44	22	16	14	13	9	10	Southern Atlantic District.
10	9	11	10	8	11	11	6	6	9	11	9	District of the Gulf.
1	5	5	1	1	2	3	3	2		1	2	District of the Ohio.
1		1	1			2	5	1			1	District of the Mississippi.
												District of the Great Lakes.
			1			1	1	1	1	1		District of the Pacific.
						1	1	1	1	1		<i>Obstruction of Intestine:</i>
												Total cases.....3
			1			1	1	1	1	1		Southern Atlantic District.
												District of the Ohio.
									1			<i>Stricture of Intestine:</i>
									1			Total cases.....1
									1			Middle Atlantic District.
5	8	8	9	7	8	9	8	8	6	6	4	<i>Hernia:</i>
												Total cases.....48
2	2		1	2	4	2	1			2	1	Northern Atlantic District.
1	1	2	2	2	1	3	1	1	1	1	1	Middle Atlantic District.
	2					2	3	2	2	2		Southern Atlantic District.
			1									District of the Gulf.
2	2	3	1	2	1	1	1	1			1	District of the Ohio.
	1		1				1	2	1			District of the Mississippi.
		3	2	1	2	1	1	2	2	1	1	District of the Great Lakes.
												District of the Pacific.
1	1								1		2	<i>Tænia Solium:</i>
									1			Total cases.....4
											2	Middle Atlantic District.
1	1											Southern Atlantic District.
												District of the Mississippi.
76	76	66	44	48	72	76	66	47	42	39	33	<i>Diarrhœa:</i>
												Total cases.....407
4	7	6	5	3	5	3	4	2	1	3	4	Northern Atlantic District.
14	12	9	8	6	7	9	7	5	3	6	5	Middle Atlantic District.
2	3	5	2	4	5	8	11	9	5	3	1	Southern Atlantic District.
11	3	3	5	8	13	13	9	2	6	4	3	District of the Gulf.
23	26	15	10	14	28	31	26	16	10	7	10	District of the Ohio.
13	12	21	8	9	11	8	7	8	9	9	8	District of the Mississippi.
6	11	7	6	4	3	3	1	5	8	7	1	District of the Great Lakes.
3	2					1	1				1	District of the Pacific.
1	2		1	1	1		1	2	2			<i>Colic:</i>
							1	1	1			Total cases.....8
	1		1	1				1	1			Middle Atlantic District.
1	1											Southern Atlantic District.
					1							District of the Mississippi.
												District of the Great Lakes.
1	1	2		1	3	4	3	4	3	5		<i>Constipation:</i>
	1	1					1					Total cases.....19
						1						Northern Atlantic District.
1					1	2	1	1	1	2		Middle Atlantic District.
					1				1			Southern Atlantic District.
		1		1	1			1		2		District of the Gulf.
						1	1	1				District of the Mississippi.
								1	1	1		District of the Great Lakes.
								1	1	1		District of the Pacific.

V.—Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted

DISEASES AND INJURIES, &c.	NUMBER OF CASES admitted EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Ulceration of Rectum</i>									1			
Total cases.....	1											
District of the Great Lakes.....									1			
<i>Abscess of Rectum</i>		1										
Total cases.....	1											
Northern Atlantic District.....		1										
<i>Fistula in Ano</i>	3	1	3	1	2	5	3	4	1	5	1	3
Total cases.....	32											
Northern Atlantic District.....		1				2		1				
Middle Atlantic District.....					1			1	1			
Southern Atlantic District.....										2		
District of the Gulf.....			1	1		1						
District of the Ohio.....	1		2		1	1	2			1	1	2
District of the Mississippi.....								1				1
District of the Great Lakes.....	1					1	1	1				
District of the Pacific.....	1									2		
<i>Perineal Fistula</i>		1									1	
Total cases.....	2											
District of the Ohio.....		1									1	
District of the Great Lakes.....												
<i>Hæmorrhoids</i>	4	7	7	4	1	4	5	1	4	7	2	3
Total cases.....	49											
Northern Atlantic District.....		1								1	1	
Middle Atlantic District.....		1		1					1	1		
Southern Atlantic District.....			1			1	1			1		
District of the Gulf.....	1		1			1			1	1		
District of the Ohio.....	1	2	2	2		2	3		2			
District of the Mississippi.....		1	1	1						2		
District of the Great Lakes.....			1		1							1
District of the Pacific.....	2	2	1				1	1		1	1	2
<i>Fissure of the Anus</i>									1			
Total cases.....	1											
Northern Atlantic District.....									1			
<i>Prolapsus of the Rectum</i>	1				1		2		1		1	
Total cases.....	6											
Southern Atlantic District.....							1					
District of the Mississippi.....	1											
District of the Great Lakes.....					1		1		1		1	
<i>Stricture of the Rectum</i>					1							
Total cases.....	2											
Middle Atlantic District.....												
District of the Great Lakes.....					1							
<i>Hepatitis</i>	8	3	5	4	7	3	3	4	9	2	3	8
Total cases.....	64											
Northern Atlantic District.....	1		1				2	1	2		2	3
Middle Atlantic District.....	1		1						2	1		
Southern Atlantic District.....	1	1		1	4			1	2			1
District of the Gulf.....	3	2	1		1			2	1	1	1	
District of the Ohio.....				2	2	3	1		1			1
District of the Mississippi.....	1											1
District of the Great Lakes.....			1						1			
District of the Pacific.....	1		1	1								2
<i>Abscess of Liver</i>			1			1						1
Total cases.....	3											
District of the Ohio.....			1			1						1

V.—Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted

DISEASES AND INJURIES, &c.	NUMBER OF CASES admitted EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Simple Enlargement of the Liver</i>	3	1			2	3	2	1				
Total cases.....13												
Middle Atlantic District.....	1						1					
District of the Great Lakes.....	2	1			2	3	1	1				
<i>Cirrhosis of the Liver</i>						1				1	1	
Total cases.....4												
Middle Atlantic District.....											1	
District of the Ohio.....						1						
District of the Great Lakes.....										1		
<i>Cancer of the Liver</i>		1										
Total cases.....1												
Southern Atlantic District.....		1										
<i>Jaundice</i>	2	2	1		2	1	2	2	1	1	2	
Total cases.....17												
Northern Atlantic District.....					1	1						
Middle Atlantic District.....	1											
Southern Atlantic District.....			1					2		1	1	
District of the Gulf.....							1					
District of the Ohio.....	1	2					1					
District of the Mississippi.....									1			
District of the Great Lakes.....					1						1	
<i>Gallstones</i>												1
Total cases.....1												
Northern Atlantic District.....												1
<i>Splenitis</i>								1				
Total cases.....2												
District of the Gulf.....												
District of the Mississippi.....								1				
<i>Hypertrophy of the Spleen</i>				1		1			1			
Total cases.....3												
District of the Gulf.....									1			
District of the Ohio.....						1						
District of the Mississippi.....				1								
<i>Peritonitis</i>	2			1					1			1
Total cases.....6												
Northern Atlantic District.....	1			1								1
District of the Gulf.....									1			
District of the Great Lakes.....	1											
<i>Ascites</i>			1	1	1	4		1				
Total cases.....9												
District of the Gulf.....				1		3		1				
District of the Ohio.....												
District of the Great Lakes.....			1			1						
District of the Pacific.....					1							
DISEASES OF THE URINARY SYSTEM	78	64	70	63	58	70	56	59	77	45	52	53
Total cases.....733												
<i>Bright's Disease</i>	3	5	7	4	11	4	6	6	7	4	7	4
Total cases.....75												
Northern Atlantic District.....		4	4		2	1	2	1	2	1	1	
Middle Atlantic District.....			1	1	2	2	2	2	1	2	2	1
Southern Atlantic District.....					1				1	1	1	
District of the Gulf.....	1				3			1	1			
District of the Ohio.....						1	1				1	1
District of the Mississippi.....									1			
District of the Great Lakes.....	1	1	2	1	3		1	2	1		1	2
District of the Pacific.....	1			2							1	

V.—*Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted*

DISEASES AND INJURIES, &c.	NUMBER OF CASES <i>admitted</i> EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Granular Kidney</i>			1									
Total cases.....	1											
District of the Gulf.....			1									
<i>Fatty Kidney</i>			1									
Total cases.....	1											
District of the Pacific.....			1									
<i>Lardaceous Kidney</i>			1									
Total cases.....	1											
District of the Gulf.....			1									
<i>Abscess of the Kidney</i>										1		
Total cases.....	1									1		
Middle Atlantic District.....										1		
<i>Pyelitis</i>										1		
Total cases.....	1									1		
Northern Atlantic District.....										1		
<i>Fibrinous Deposit of Kidney</i>	1											
Total cases.....	1											
District of the Ohio.....	1											
<i>Renal Calculus</i>				1								
Total cases.....	1											
Middle Atlantic District.....				1								
<i>Cystitis</i>	2	3	2	3	5	6	1	5	4	1	3	1
Total cases.....	38											
Northern Atlantic District.....	1	1	1	2		1		2	4		2	1
Middle Atlantic District.....					2							
Southern Atlantic District.....	1	1						1			1	
District of the Gulf.....					1							
District of the Ohio.....		1	1	1	1	3	1	1				
District of the Mississippi.....										1		
District of the Great Lakes.....					1	1						
District of the Pacific.....						1		1				
<i>Hæmaturia</i>	1											1
Total cases.....	2											
Southern Atlantic District.....	1											
District of the Great Lakes.....												1
<i>Irritability of the Bladder</i>				1								
Total cases.....	2											
Middle Atlantic District.....												
District of the Ohio.....				1								
<i>Incontinence of Urine</i>					1	2	1			1		
Total cases.....	5											
Northern Atlantic District.....						1						
District of the Ohio.....							1					
District of the Mississippi.....										1		
District of the Great Lakes.....					1							
District of the Pacific.....						1						
<i>Retention of Urine</i>	1		1	1						1		
Total cases.....	4											
Southern Atlantic District.....				1						1		
District of the Gulf.....			1									
District of the Great Lakes.....	1											
<i>Inflammation of the Prostate</i>							1		1		1	1
Total cases.....	5											
Northern Atlantic District.....											1	
Middle Atlantic District.....							1		1			
District of the Ohio.....												1

V.—*Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted*

DISEASES AND INJURIES, &c.	NUMBER OF CASES <i>admitted</i> EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases												
<i>Gonorrhœa</i>	20	19	18	16	16	16	11	17	25	13	22	11
Total cases.....	211											
Northern Atlantic District.....	6	3	4	4	4	4	3	4	3	4	5	2
Middle Atlantic District.....	1	6	2	3	2	2		3	5	3	7	3
Southern Atlantic District.....		3	2	1	2	3	2	2	1	1	2	2
District of the Gulf.....	2	1	4	2	1	2	2	3	7	2	4	2
District of the Ohio.....	5	4		1	3	3	1	2	7	2		
District of the Mississippi.....	4	1	3	3	3	2	1	3	2	1	2	
District of the Great Lakes.....	1		2	2								2
District of the Pacific.....	1	1	1		1		2				2	
<i>Balanitis</i>	1	2		1								
Total cases.....	5											
Northern Atlantic District.....												
District of the Ohio.....				1								
District of the Great Lakes.....	1	2										
<i>Phimosis</i>	3							1	1	1		1
Total cases.....	8											
Middle Atlantic District.....	1								1	1		
Southern Atlantic District.....												1
District of the Ohio.....								1				
District of the Great Lakes.....	1											
District of the Pacific.....	1											
<i>Paraphimosis</i>		2		1			1					1
Total cases.....	5											
Middle Atlantic District.....							1					
District of the Ohio.....		2										1
District of the Great Lakes.....				1								
<i>Bubo</i>	3		1		3		2	1			1	4
Total cases.....	17											
Middle Atlantic District.....					1						1	3
Southern Atlantic District.....	2											
District of the Ohio.....								1				
District of the Mississippi.....												1
District of the Great Lakes.....	1		1		2		2					
<i>Epididymitis</i>	2	6	13	1	3	2	4	1	3	4	4	
Total cases.....	48											
Northern Atlantic District.....	2	1	3		1		1				1	
Middle Atlantic District.....			1							2	1	
Southern Atlantic District.....		1	2		1		1	1	3	1	1	
District of the Gulf.....												
District of the Ohio.....		3	1	1							1	
District of the Great Lakes.....			3			1				1		
District of the Pacific.....		1	3		1	1	2					
<i>Gleet</i>	1	1	6	5	2	1	4	2	2	2	2	2
Total cases.....	30											
Northern Atlantic District.....	1		1				1	1	1			
Middle Atlantic District.....		1	2	1		1	1		1	1	2	1
Southern Atlantic District.....			3	2			1	1				
District of the Gulf.....				1								
District of the Great Lakes.....					1							
District of the Pacific.....				1	1		1			1		1
<i>Urethritis</i>						1	1		2	1		
Total cases.....	5											
Southern Atlantic District.....										1		
District of the Pacific.....						1	1		2			
<i>Stricture of the Urethra</i>	15	9	10	12	10	14	13	12	13	5	8	5
Total cases.....	132											
Northern Atlantic District.....	2	1	1	2	1	2	2				2	
Middle Atlantic District.....	1	2	4	1	1	3	2	2	2	2	2	1

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.
1875.						1876.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
27	35	29	31	30	27	18	29	40	31	32	25	Local Diseases.
7	8	5	7	9	7	5	7	10	4	8	7	<i>Gonorrhœa</i> :
4	8	6	6	5	6	1	4	7	9	9	9	Total cases.....211
1	4	3	3	2	3	4	4	2	2	2	2	Northern Atlantic District.
4	3	4	5	4	2	2	4	9	7	5	3	Middle Atlantic District.
5	6	2	2	4	6	2	4	9	7	3	1	Southern Atlantic District.
4	3	5	3	3	3	2	3	3	2	3	.....	District of the Gulf.
1	1	2	4	2	.....	2	2	.....	.....	.....	2	District of the Ohio.
1	2	2	1	1	.....	2	1	.....	.....	2	1	District of the Mississippi.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Great Lakes.
2	2	1	1	1	.....	.....	.....	.....	.....	.....	.....	District of the Pacific.
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	<i>Balanitis</i> :
1	2	1	.....	1	.....	.....	.....	.....	.....	.....	.....	Total cases.....5
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Northern Atlantic District.
4	1	.....	.....	.....	.....	.....	1	2	3	1	1	District of the Ohio.
1	.....	.....	.....	.....	.....	.....	.....	1	2	1	.....	District of the Great Lakes.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	District of the Pacific.
2	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	<i>Phimosis</i> :
1	.....	.....	.....	.....	.....	.....	1	1	1	.....	.....	Total cases.....8
.....	2	2	1	.....	.....	1	.....	.....	.....	.....	.....	Middle Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southern Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Ohio.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Great Lakes.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Pacific.
.....	2	2	1	.....	.....	1	.....	.....	.....	.....	1	<i>Paraphimosis</i> :
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Total cases.....5
.....	2	2	.....	.....	.....	1	.....	.....	.....	.....	1	Middle Atlantic District.
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	District of the Ohio.
5	1	2	3	4	1	2	2	1	.....	1	5	District of the Great Lakes.
1	.....	.....	2	2	1	.....	.....	.....	.....	1	4	<i>Bubo</i> :
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Total cases.....17
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Middle Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southern Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Ohio.
2	1	2	1	2	.....	2	1	1	.....	.....	1	District of the Mississippi.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Great Lakes.
7	8	18	10	4	5	8	5	6	6	5	1	<i>Epididymitis</i> :
4	3	4	2	1	1	1	.....	.....	.....	1	.....	Total cases.....48
.....	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	Northern Atlantic District.
1	.....	3	3	1	1	2	2	4	3	1	1	Middle Atlantic District.
.....	3	3	1	1	.....	.....	.....	.....	.....	.....	.....	Southern Atlantic District.
1	.....	3	1	.....	1	1	1	.....	1	1	.....	District of the Gulf.
1	1	4	2	1	2	4	2	2	.....	.....	.....	District of the Ohio.
1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Great Lakes.
1	1	6	8	5	2	4	4	4	5	3	2	District of the Pacific.
1	.....	1	1	1	.....	1	1	2	2	.....	.....	<i>Gleet</i> :
.....	1	2	2	1	1	1	.....	1	2	3	1	Total cases.....30
.....	.....	3	3	1	.....	1	2	1	.....	.....	.....	Northern Atlantic District.
.....	.....	.....	1	1	1	.....	.....	.....	.....	.....	.....	Middle Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southern Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Gulf.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Ohio.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Great Lakes.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Pacific.
.....	.....	.....	.....	.....	.....	1	2	1	2	3	2	<i>Urethritis</i> :
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Total cases.....5
.....	.....	.....	.....	.....	.....	1	2	1	2	2	1	Southern Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Pacific.
21	25	22	26	24	28	29	26	30	21	15	14	<i>Stricture of the Urethra</i> :
2	2	2	4	3	2	3	2	1	.....	2	1	Total cases.....132
1	3	7	5	4	6	8	4	6	5	4	5	Northern Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Middle Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted

DISEASES AND INJURIES, &c.	NUMBER OF CASES admitted EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Stricture of the Urethra—Cont'd.</i>												
Southern Atlantic District.....	1	.....	1	1	1	3	3	2	.....	.....	1	.....
District of the Gulf.....	2	.....	1	2	3	1	1	1	3	1	1	.....
District of the Ohio.....	2	3	1	2	1	1	3	2	.....	.....	.....	1
District of the Mississippi.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
District of the Great Lakes.....	6	2	2	.....	1	3	2	3	3	.....	1	2
District of the Pacific.....	1	.....	.....	3	2	1	.....	2	5	2	1	1
<i>Urinary Fistula.....</i>	.....	1	1	.....	.....	1	.....	1	1	.....	2	.....
Total cases.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Northern Atlantic District.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
Middle Atlantic District.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
District of the Mississippi.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
District of the Pacific.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	1	.....
DISEASES OF THE MALE ORGANS } OF GENERATION.....	15	15	17	17	16	21	13	14	11	11	15	21
Total cases.....	201	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Abscess of the Penis.....</i>	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....
Total cases.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Northern Atlantic District.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
District of the Great Lakes.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Ulcer of the Penis.....</i>	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total cases.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Middle Atlantic District.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Scrotal Fistula.....</i>	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....
Total cases.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Middle Atlantic District.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....
<i>Hydrocele.....</i>	.....	2	.....	1	1	1	.....	.....	.....	1	1	.....
Total cases.....	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Northern Atlantic District.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....
Middle Atlantic District.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Southern Atlantic District.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
District of the Gulf.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
District of the Mississippi.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
District of the Great Lakes.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
District of the Pacific.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
<i>Varicocele.....</i>	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Total cases.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Middle Atlantic District.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
District of the Gulf.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Hæmatocele.....</i>	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Total cases.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
District of the Mississippi.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
<i>Orchitis.....</i>	14	13	15	16	15	18	13	14	11	10	13	19
Total cases.....	184	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Northern Atlantic District.....	3	.....	1	.....	.....	1	1	2	.....	.....	1	1
Middle Atlantic District.....	1	1	1	2	2	3	4	2	2	3	1	5
Southern Atlantic District.....	1	1	3	3	1	1	.....	2	.....	.....	1	3
District of the Gulf.....	1	.....	2	.....	3	2	3	1	2	.....	.....	.....
District of the Ohio.....	3	5	3	4	4	5	1	4	1	1	4	.....
District of the Mississippi.....	4	.....	1	3	2	5	1	1	1	2	.....	3
District of the Great Lakes.....	1	4	2	1	1	.....	1	.....	.....	.....	1	1
District of the Pacific.....	.....	2	2	3	2	1	2	2	5	4	5	6
<i>Spermatorrhœa.....</i>	.....	.....	.....	.....	1	.....	1	2	.....	.....	1	1
Total cases.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Southern Atlantic District.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....

and Treated (in Hospitals) during the Year ended June 30, 1876--Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.
1875.						1876.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
2	2	2	2	1	4	4	5	1	...	1	1	Local Diseases. <i>Stricture of the Urethra—Cont'd.</i> Southern Atlantic District. District of the Gulf. District of the Ohio. District of the Mississippi. District of the Great Lakes. District of the Pacific.
3	2	2	3	6	6	2	3	7	6	3	1	
3	6	4	4	3	3	4	4	3	1	...	1	
...	1	...	1	1	...	1	...	...	...	...	...
8	7	4	4	2	4	5	5	7	5	2	3	
2	2	1	3	4	3	2	3	5	4	3	2	
...	1	2	2	1	2	2	3	3	4	5	2	
...	...	...	...	...	1	1	1	1	1	2	1	
...	1	1	1	...	...	...	...	...	1	...	...
...	...	1	1	1	1	1	1	1	1	2	1	
30	29	29	32	29	38	33	29	21	21	25	33	{ DISEASES OF THE MALE ORGANS OF GENERATION.
...	...	1	1	...	...	...	...	...	...	1	1	Total cases.....201
...	...	...	...	...	...	...	...	...	...	1	1	<i>Abscess of the Penis:</i> Total cases.....2
...	...	1	1	...	...	...	...	...	...	...	...	Northern Atlantic District. District of the Great Lakes.
...	...	1	1	...	...	...	...	...	...	...	...	<i>Ulcer of the Penis:</i> Total cases.....1
...	...	1	1	...	...	...	...	...	...	...	...	Middle Atlantic District.
...	...	...	...	...	2	2	...	...	...	...	...	<i>Scrotal Fistula:</i> Total cases.....2
...	...	...	...	...	2	2	...	...	...	...	...	Middle Atlantic District.
2	2	1	1	2	2	1	1	...	1	1	...	<i>Hydrocele:</i> Total cases.....9
1	...	...	...	...	...	...	...	...	1	1	...	Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Mississippi. District of the Great Lakes. District of the Pacific.
...	1	...	...	...	1	1	1	...	...	...	...
1	...	1	1	1	...	...	...	...	...	...	...
1	...	...	...	...	...	...	...	...	...	...	1	<i>Varicocele:</i> Total cases.....2
...	...	...	...	...	...	...	...	...	...	...	1	Middle Atlantic District. District of the Gulf.
...	...	...	...	...	...	...	...	...	...	...	1	<i>Hæmatocele:</i> Total cases.....1
...	...	...	...	...	...	...	...	...	...	...	1	District of the Mississippi.
27	27	26	29	27	34	30	28	21	20	23	30	<i>Orchitis:</i> Total cases.....184
6	3	2	2	1	1	2	4	2	...	1	2	Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Ohio. District of the Mississippi. District of the Great Lakes. District of the Pacific.
6	4	3	3	3	6	5	5	4	6	4	5	
1	2	3	5	2	2	2	2	1	...	1	4	
1	1	3	1	3	5	6	4	2	2	1	...	
3	7	5	6	8	9	7	6	4	2	4	2	
5	1	2	4	4	8	4	3	2	2	2	3	
3	6	3	3	2	1	1	1	...	...	1	2	
2	3	5	5	4	2	3	3	6	8	9	12	
...	...	...	...	1	1	1	2	1	...	1	2	<i>Spermatorrhœa:</i> Total cases.....6
...	...	...	...	...	...	...	1	...	...	...	...	Southern Atlantic District.

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.
1875.						1876.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
						1	1	1				Local Diseases. <i>Spermatorrhœa</i> —Continued. District of the Ohio. District of the Mississippi. District of the Pacific.
				1	1					1	1	
31	35	32	23	25	28	38	37	44	43	34	19	
	2											{ DISEASES OF THE ORGANS OF LO- COMOTION: Total cases .....158
	2											
3	3	6	4	6	3	1	3	7	5	5	2	<i>Ostitis</i> : Total cases .....1 District of the Mississippi.
1	1	2	2	1	1		1	1	1		1	
1		2						1				<i>Periostitis</i> : Total cases .....25 Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Ohio. District of the Mississippi. District of the Great Lakes. District of the Pacific.
1				1								
1	1	1										<i>Caries</i> : Total cases .....11 Northern Atlantic District. Middle Atlantic District. District of the Gulf. District of the Ohio. District of the Great Lakes.
	1	1	2	3	2	1	2	3	2	3		
4	4	3	2	3	4	3	3	3	2		1	<i>Necrosis</i> : Total cases .....53 Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Ohio. District of the Mississippi. District of the Great Lakes. District of the Pacific.
		1	1	1	1	1	1	1				
2	2	1										<i>Diffused Osseous Tumor</i> : Total cases .....2 Northern Atlantic District. District of the Great Lakes.
2	2	1	1	1	2	1	1	1	1		1	
					1	1	1	1	1			<i>Synovitis</i> : Total cases .....44 Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Ohio. District of the Mississippi. District of the Great Lakes.
9	12	11	7	8	9	12	9	14	20	14	9	
2	3	3	1	4	4	3	3	3	2	2	1	<i>Ankylosis of Joints</i> : Total cases .....5 District of the Gulf. District of the Ohio. District of the Great Lakes. District of the Pacific.
3	5	4	4	2	2	3	4	4	6	5	4	
		1				1	1	1	4	3	1	<i>Dropsy of Joints</i> : Total cases .....3 Northern Atlantic District.
	1	2	1	1		1		2	2	1		
2	2	1	1	1				1	2	1	1	
1									1	1		
1					1	2	1	3	3	1	1	
1	1				2	2					1	
						1	1		1	1		
						1	1					
									1	1		
8	7	10	7	5	8	14	14	13	11	8	4	
1		1			2	5	4	2	1			
2	3	4	4	2	4	5	4	5	3	5	3	
			1	1		2	2	1	1	1		
1							2	2	1	1	1	
1	1	1	1	1	2	2	2	3	4			
3	3	4	1	1					1	1		
						2	2	2		3	1	
						1	1	1				
						1	1	1		1	1	
										1		
2	1	1	1					1	1	1	1	
1	1	1	1									

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.
1875.						1876.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
1								1	1	1	1	Local Diseases.
												<i>Dropsy of Joints</i> —Continued.
												Southern Atlantic District.
												District of the Great Lakes.
1	1											<i>Relaxation of Ligaments:</i>
1	1											Total cases.....1
												District of the Ohio.
3	1		2	3	2	3	3	2	1	1		<i>Abscesses of Spinal Region:</i>
2	1		2	3	2	3	3	2	1	1		Total cases.....8
1												District of the Ohio.
												District of the Great Lakes.
				1	1	1	1	1	1	1	1	<i>Angular Deformity of Spine:</i>
				1	1	1	1	1	1	1	1	Total cases.....1
												District of the Ohio.
1	1											<i>Curvature of Spine:</i>
1	1											Total cases.....1
												District of the Ohio.
	1	1										<i>Progressive Muscular Atrophy:</i>
	1	1										Total cases.....1
									1		1	Middle Atlantic District.
					1	1	1					<i>Club-foot:</i>
					1	1	1					Total cases.....1
												District of the Ohio.
								1	1			<i>Wry Neck:</i>
												Total cases.....1
								1	1			Northern Atlantic District.
140	142	130	123	127	140	173	151	159	138	144	133	{ DISEASES OF THE CELLULAR TIS-
												SUE AND CUTANEOUS SYSTEM.
												Total cases.....867
2	2	1	4	1	1				1	1	2	<i>Inflammation of Cellular Tissue:</i>
												Total cases.....10
2	2	1										Northern Atlantic District.
			3						1		1	Southern Atlantic District.
			1	1	1							District of the Gulf.
										1	1	District of the Ohio.
42	43	40	29	31	42	28	26	39	39	43	40	<i>Abscess of Cellular Tissue:</i>
												Total cases.....232
7	3	3	2	1	1	4	4	8	6	10	8	Northern Atlantic District.
3	7	3	6	8	8	5	3	5	9	9	7	Middle Atlantic District.
7	9	9	7	9	11	11	8	6	6	7	4	Southern Atlantic District.
4	7	8	5	1	3	1	2	5	3		4	District of the Gulf.
5	7	6	1		2	2	3	2	3	4	1	District of the Ohio.
6	4	2	2	3	5	1	2	6	5	5	2	District of the Mississippi.
4	1	2	2	5	7	2	1			4	11	District of the Great Lakes.
6	5	7	4	4	5	2	3	7	7	4	3	District of the Pacific.
2	1	1		1	1	1				1		<i>Erythema:</i>
												Total cases.....6
										1		Middle Atlantic District.
2	1	1		1	1	1						District of the Great Lakes.
										1	1	<i>Roseola:</i>
												Total cases.....1
										1	1	Middle Atlantic District.

V. —*Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted*

NUMBER OF CASES <i>admitted</i> EACH MONTH.												
	1875.						1876.					
DISEASES AND INJURIES, &c.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Prurigo</i>	1		1									
Total cases.....	2											
Southern Atlantic District.....			1									
District of the Pacific.....	1											
<i>Lichen</i>				1								
Total cases.....	1											
Northern Atlantic District.....				1								
<i>Psoriasis</i>	1	1				1	1	1	1		2	
Total cases.....	8											
Northern Atlantic District.....		1				1						
Middle Atlantic District.....	1						1				1	
Southern Atlantic District.....												
District of the Great Lakes.....									1			
District of the Pacific.....								1			1	
<i>Herpes</i>	5			1	2	1	1					2
Total cases.....	12											
Northern Atlantic District.....	1			1	1	1						
Middle Atlantic District.....	1						1					
Southern Atlantic District.....	1											
District of the Ohio.....	1											
District of the Great Lakes.....	1				1							2
<i>Pemphigus</i>		1			1				1			
Total cases.....	3											
Middle Atlantic District.....		1			1							
District of the Mississippi.....									1			
<i>Eczema</i>	3		2	5	3	1	2	1	3	3	3	3
Total cases.....	30											
Northern Atlantic District.....				1	1	1					1	2
Middle Atlantic District.....	1								1		1	
Southern Atlantic District.....	1			1	2		1					1
District of the Gulf.....									1			
District of the Ohio.....	1			2								
District of the Mississippi.....							1		1			
District of the Great Lakes.....			1							1		
District of the Pacific.....			1	1				1		2	1	
<i>Impetigo</i>				1					1			
Total cases.....	1											
Northern Atlantic District.....				1					1			
<i>Rupia</i>												
Total cases.....	1											
Middle Atlantic District.....												
<i>Ecthyma</i>								1			1	1
Total cases.....	3											
Northern Atlantic District.....											1	1
District of the Gulf.....								1				
<i>Sycosis</i>		1						1				1
Total cases.....	4											
Middle Atlantic District.....								1				
District of the Gulf.....												
District of the Great Lakes.....		1										
District of the Pacific.....												1
<i>Xeroderma</i>											1	
Total cases.....	1											
Middle Atlantic District.....											1	

and Treated (in Hospitals) during the year ended June 30, 1876—Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.
1875.						1876.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
												Local Diseases.
1		1	1									<i>Prurigo:</i>
		1	1									Total cases.....2
1												Southern Atlantic District.
			1									District of the Pacific.
				1								<i>Lichen:</i>
			1									Total cases.....1
												Northern Atlantic District.
1	2	1			1	2	3	2	1	2	3	<i>Psoriasis:</i>
												Total cases.....8
	1	1			1	1	1					Northern Atlantic District.
1	1					1	1			1	1	Middle Atlantic District.
											1	Southern Atlantic District.
								1	1			District of the Great Lakes.
							1	1		1	1	District of the Pacific.
5	2	1	1	3	2	2	1				2	<i>Herpes:</i>
												Total cases.....12
1	1		1	2	1	1						Northern Atlantic District.
1						1	1					Middle Atlantic District.
1												Southern Atlantic District.
1	1	1										District of the Ohio.
1				1	1						2	District of the Great Lakes.
	1	1	1	2	1			1	1			<i>Pemphigus:</i>
	1	1	1	2	1							Total cases.....3
								1	1			Middle Atlantic District.
												District of the Mississippi.
4	2	3	5	7	5	2	4	6	6	4	5	<i>Eczema:</i>
												Total cases.....30
			1	2	2					1	2	Northern Atlantic District.
1								1	1	1	1	Middle Atlantic District.
1	1		1	3	2	1	2	2			1	Southern Atlantic District.
								1	1			District of the Gulf.
1	1	1	2	1								District of the Ohio.
						1	1	2	1			District of the Mississippi.
		1							1		1	District of the Great Lakes.
1		1	1	1	1		1		2	2		District of the Pacific.
			1					1	1	1		<i>Impetigo:</i>
												Total cases.....1
			1					1	1	1		Northern Atlantic District.
1												<i>Rupia:</i>
1												Total cases.....1
												Middle Atlantic District.
							1	1		1	1	<i>Ecthyma:</i>
												Total cases.....3
										1	1	Northern Atlantic District.
							1	1				District of the Gulf.
1	1	1					1	1	1	1	1	<i>Sycosis:</i>
												Total cases.....4
							1	1	1	1		Middle Atlantic District.
1												District of the Gulf.
	1	1										District of the Great Lakes.
											1	District of the Pacific.
										1		<i>Xeroderma:</i>
												Total cases.....1
										1		Middle Atlantic District.

V.—*Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted*

NUMBER OF CASES admitted EACH MONTH.												
DISEASES AND INJURIES, &c.	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Frostbite</i>				1	1	42	14	9	8	9	6	
Total cases						91						
Northern Atlantic District						21	4	1	5	2	2	
Middle Atlantic District						5	2	5	1	4	3	
Southern Atlantic District						9	5	2				
District of the Gulf									2			
District of the Ohio						2	2	1				
District of the Mississippi										1		
District of the Great Lakes				1	1	5	1			2	1	
<i>Ulcer</i>	29	27	25	27	32	24	24	22	30	22	20	19
Total cases						333						
Northern Atlantic District	1	3	2		2	1		3	1	2	1	1
Middle Atlantic District	6	6	2	2	1	5	6	5	4	7	5	5
Southern Atlantic District	1	1	4	5	5	4	3	2	1	1	2	1
District of the Gulf	3	2	3	5	9	1	5	4	6	2	3	2
District of the Ohio	8	7	6	6	4	3	3	1	5	2	3	1
District of the Mississippi	2	1	2	3	4	4	3	4	3	3	3	
District of the Great Lakes	5	4	3	5	3	3	2	2	2	3		6
District of the Pacific	3	3	3	1	4	3	2	1	8	2	3	3
<i>Boil</i>	4		1	2	2	1	2		1	1		3
Total cases						17						
Northern Atlantic District				1	2		1		1	1		1
Middle Atlantic District	1			1								
Southern Atlantic District						1						
District of the Gulf	1											
District of the Ohio	1											1
District of the Mississippi			1									1
District of the Great Lakes	1						1					
<i>Carbuncle</i>	2	3	1				3		4		2	
Total cases						17						
Northern Atlantic District		1	1				1					
Middle Atlantic District	1	1							1			
Southern Atlantic District							1				1	
District of the Gulf		1							2			
District of the Ohio							1					
District of the Great Lakes	1										1	
<i>Onychia</i>								1				
Total cases						1						
District of the Great Lakes								1				
<i>Whitlow</i>	7	7	10	9	5	11	9	7	10	9	10	12
Total cases						109						
Northern Atlantic District			3	2	2	3		2	2	2	2	5
Middle Atlantic District	3		3	1	1	2	2	2	2	1	2	1
Southern Atlantic District		1	1	1		3	2		3	2		
District of the Gulf	1		1	1		3	1	2	2	2		
District of the Ohio				2			2	1				
District of the Mississippi	1		1				1			1	4	3
District of the Great Lakes	2	6	1	2	2		1		1	1	2	3
<i>Condyloma</i>							1					
Total cases						1						
Northern Atlantic District							1					
<i>Cheloid</i>							1					
Total cases						1						
Southern Atlantic District							1					
<i>Ingrown Nail</i>			1						1			
Total cases			2									
District of the Gulf			1									
District of the Ohio									1			

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES *treated* EACH MONTH.

1875.

1876.

DISEASES AND INJURIES, &c.

July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
1			1	2	42	48	36	27	25	15	8
					21	21	12	10	10	5	3
1					5	6	9	5	8	5	4
					9	12	10	7			
								2	2	2	
					2	4	2				
									1	1	1
			1	2	5	5	3	3	4	2	
61	66	60	57	62	64	65	60	59	62	59	46
4	4	4	2	3	3	3	7	6	6	4	1
10	14	14	8	5	6	12	11	6	16	15	15
3	3	4	8	8	9	9	7	6	4	5	3
6	6	5	9	16	12	10	10	10	9	8	3
14	14	12	11	7	9	8	6	7	4	4	3
6	3	4	6	8	9	9	8	5	7	6	6
10	11	7	7	8	8	8	5	7	5	4	6
8	11	10	6	7	8	6	6	12	11	13	9
4	3	1	2	3	3	3	2	2	2	1	3
			1	3	2	1		1	2	1	1
1	1		1		1	1	1				
1	1										
1											1
1	1	1				1	1	1			1
4	6	4	3	2	1	4	1	4	2	2	1
1	2	2	2	1	1	2					
1	2	1						1	1		
	1	1	1	1		1		1	1		
2	1					1	1			1	1
							1				
							1				
10	12	13	16	12	16	16	13	14	16	16	20
		3	3	4	5	2	2	3	4	3	6
3	2	3	4	2	2	4	3	4	4	3	3
	1	1	2	1	4	3		3	3	2	1
1	1	1	2	1	3	3	3	3	3		
			2	1		2	4				
3	1	1				1	1		1	5	5
3	7	4	3	3	2	1		1	1	3	5
						1					
						1					
						1	1				
						1	1				
		1						1	1		
	1										

Local Diseases.

Frostbite:

Total cases.....91

Northern Atlantic District.
 Middle Atlantic District.
 Southern Atlantic District.
 District of the Gulf.
 District of the Ohio.
 District of the Mississippi.
 District of the Great Lakes.

Ulcer:

Total cases.....333

Northern Atlantic District.
 Middle Atlantic District.
 Southern Atlantic District.
 District of the Gulf.
 District of the Ohio.
 District of the Mississippi.
 District of the Great Lakes.
 District of the Pacific.

Boil:

Total cases.....17

Northern Atlantic District.
 Middle Atlantic District.
 Southern Atlantic District.
 District of the Gulf.
 District of the Ohio.
 District of the Mississippi.
 District of the Great Lakes.

Carbuncle:

Total cases.....17

Northern Atlantic District.
 Middle Atlantic District.
 Southern Atlantic District.
 District of the Gulf.
 District of the Ohio.
 District of the Great Lakes.

Onychia:

Total cases.....1

District of the Great Lakes.

Whitlow:

Total cases.....109

Northern Atlantic District.
 Middle Atlantic District.
 Southern Atlantic District.
 District of the Gulf.
 District of the Ohio.
 District of the Mississippi.
 District of the Great Lakes.

Condyloma:

Total cases.....1

Northern Atlantic District.

Cheloid:

Total cases.....1

Southern Atlantic District.

Ingrown Nail:

Total cases.....2

District of the Gulf.
 District of the Ohio.

V.—*Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted*

DISEASES AND INJURIES, &c.	NUMBER OF CASES <i>admitted</i> EACH MONTH.												
	1875.						1876.						
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
Local Diseases.													
<i>Ringworm</i>						1							
Total cases	1												
District of the Gulf						1							
<i>Guinea Worm</i>													
Total cases	1												
Northern Atlantic District													
<i>Scabies</i>									1				
Total cases	1												
Southern Atlantic District									1				
Debility.													
TOTAL CASES	48	1	3	6	4	10	8	3	1	4	3	3	2
Northern Atlantic District				1		1	1	1		1			
Middle Atlantic District					1	1	1		1				
Southern Atlantic District	1		3	2	4	2				1	1	1	
District of the Gulf		1	1		1	1	1	1	2				
District of the Ohio		1	1							1			
District of the Mississippi			1		2				1		2		
District of the Great Lakes		1		1	2					1		1	
District of the Pacific						3							
Malingers.													
TOTAL CASES	8		2								4	2	
Northern Atlantic District			2								2		
Middle Atlantic District											2	2	
Poisons.													
TOTAL CASES	54	4	7	4	6	6	4	3	3	5	1	4	5
<i>Lead</i>	1						1						1
Total cases	3												
Middle Atlantic District						1							
District of the Gulf													
District of the Great Lakes	1												
District of the Pacific													1
<i>Oak</i>							1				1		
Total cases	2												
District of the Gulf						1				1			
<i>Opium</i>									1			1	
Total cases	2												
District of the Mississippi									1				
District of the Pacific											1		
<i>Alcohol</i>	3	7	4	6	6	2	3	2	5	1	3	4	
Total cases	47												
Northern Atlantic District	1	1			1		2		2				2
Middle Atlantic District			1		1						1		
Southern Atlantic District	1		1	1			1		1	1			
District of the Gulf				2		2			2	2			
District of the Ohio	1	3	1	2	2			1		1	2	1	
District of the Mississippi				1				1					1
District of the Great Lakes		3	1										
District of the Pacific					2					2			

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES <i>treated</i> EACH MONTH.												DISEASES AND INJURIES, &c.
1875.						1876.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
					1							Local Diseases.
					1							<i>Ringworm:</i>
												Total cases.....1
												District of the Gulf.
1	1	1	1	1								<i>Guinea Worm:</i>
1	1	1	1	1								Total cases.....1
												Northern Atlantic District.
								1				<i>Scabies:</i>
								1				Total cases.....1
												Southern Atlantic District.
												Debility.
1	4	12	14	15	16	7	5	6	8	6	2	TOTAL CASES.....48
			1		1	1	2	1	1			Northern Atlantic District.
				1	1	1		1	1	1		Middle Atlantic District.
1	1	4	4	5	5	2	1		1	2		Southern Atlantic District.
	1	2	5	3	3	2	2	3	2	1		District of the Gulf.
	1	4	1						1			District of the Ohio.
		1	1	3	2			1	1	2	1	District of the Mississippi.
	1	1	2	3	1				1		1	District of the Great Lakes.
					3	1						District of the Pacific.
												Malingers.
		2								4	4	TOTAL CASES.....8
		2								2		Northern Atlantic District.
										2	4	Middle Atlantic District.
												Poisons.
6	8	7	7	7	7	6	5	8	13	7	9	TOTAL CASES.....54
1	1				2	1	1				1	<i>Lead:</i>
												Total cases.....3
					1	1	1					Middle Atlantic District.
					1							District of the Gulf.
1	1											District of the Great Lakes.
											1	District of the Pacific.
					1	1	1		1			<i>Oak:</i>
					1	1	1		1			Total cases.....2
												District of the Gulf.
							1	1	1	1	1	<i>Opium:</i>
							1	1	1			Total cases.....2
										1	1	District of the Mississippi.
												District of the Pacific.
5	7	7	7	7	5	4	3	6	11	6	7	<i>Alcohol:</i>
												Total cases.....47
1	1			1		2		2	1		2	Northern Atlantic District.
		1		1					3	1		Middle Atlantic District.
1		1	1			1	1	1	1			Southern Atlantic District.
			2	1	3	1		2	3	2	1	District of the Gulf.
2	3	3	3	2	1		1	1	1	2	2	District of the Ohio.
			1				1				1	District of the Mississippi.
	3	2										District of the Great Lakes.
				2	1				2	1	1	District of the Pacific.

V.—Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted

DISEASES AND INJURIES, &c.	NUMBER OF CASES <i>admitted</i> EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Injuries.												
TOTAL CASES 1,547	105	118	124	130	135	146	140	66	123	105	127	99
<i>Burns and Scalds</i>	5	6	4	6	2	6	3	3	2	2	8	2
Total cases.....51												
Northern Atlantic District.....		1	3							1		
Middle Atlantic District.....	2	1		1		3	1			1		
Southern Atlantic District.....		1		3	1			1				
District of the Gulf.....						2	1	2				1
District of the Ohio.....	1	1	1								7	
District of the Mississippi.....		1									1	
District of the Great Lakes.....	2			1	1	1						1
District of the Pacific.....		1		1			1		2			
<i>Lightning Stroke</i>		1										
Total cases.....1												
Middle Atlantic District.....		1										
<i>Concussion of the Brain</i>		1	2	2	1	3			1	1	1	1
Total cases.....14												
Northern Atlantic District.....			1			1						
Middle Atlantic District.....		1		1					1	1		
Southern Atlantic District.....				1								1
District of the Gulf.....											1	
District of the Mississippi.....						2						
District of the Pacific.....			1		1							
<i>Contusions</i>	48	47	58	59	63	77	68	34	51	42	51	36
Total cases.....682												
Northern Atlantic District.....	8	3	8	4	9	11	8	1	5	1	7	3
Middle Atlantic District.....	3	3	3	9	8	3	2	4	6	5	8	4
Southern Atlantic District.....	5	4	4	6	7	4	7	3	4	4	3	2
District of the Gulf.....	7	3	3	6	4	14	12	8	10	2	5	
District of the Ohio.....	3	8	3	9	9	17	12	5	6	10	5	3
District of the Mississippi.....	8	5	8	6	9	18	9	9	7	11	9	7
District of the Great Lakes.....	11	14	21	18	6	4	9	1		5	9	10
District of the Pacific.....	3	7	8	1	11	6	9	3	13	4	5	7
<i>Sprains</i>	8	13	12	17	18	9	19	12	5	15	14	7
Total cases.....157												
Northern Atlantic District.....		2		1	2	2			1		1	2
Middle Atlantic District.....	1		2	1	2		4		1	1	3	1
Southern Atlantic District.....	1	1		5	4	2	5	3		2		
District of the Gulf.....			1	3	3		2	3		3	1	
District of the Ohio.....	1			3	1	3	2	3	2	3	2	1
District of the Mississippi.....	1	3	5	1	1					2	4	2
District of the Great Lakes.....	3	7	4	2	5	2	4	2	1	1	2	1
District of the Pacific.....	1			1			2	1		3	1	
<i>Injury to Spinal Cord without } known Fracture</i>										1		
Total cases.....1												
District of the Pacific.....										1		
<i>Wounds</i>	24	30	21	24	26	34	15	30	35	21	24	26
Total cases.....330												
Northern Atlantic District.....	2	1		1	1	2	1	2	2		4	4
Middle Atlantic District.....	2	2	1	5	2	3	5		2	4	3	5
Southern Atlantic District.....	1	4	1	6	4	6		5	6	2		1
District of the Gulf.....	4	3	2		8	5	5	5	2		4	1
District of the Ohio.....		3	6	5	3	7		5	8	9	2	5
District of the Mississippi.....	4	12	3	2	4	5	2	13	13	4	8	3
District of the Great Lakes.....	9	5	7	4	4	5	2			1	3	6
District of the Pacific.....	2		1	1		1			2	1		

V.—Tabular Statement, by Months and Districts, of Diseases and Injuries Admitted

DISEASES AND INJURIES, &c.	NUMBER OF CASES admitted EACH MONTH.											
	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Injuries.												
<i>Fractures</i>	18	20	22	19	22	16	12	16	14	18	27	26
Total cases.....	269											
Northern Atlantic District.....	2	1	5	4	5	4	4	3	6	3	7	3
Middle Atlantic District.....	4	3	4	1	1	2	2	2	1	4	5	3
Southern Atlantic District.....	2	1	3	1	2	1	1	5	2	2	2	1
District of the Gulf.....			4		2	4	4	3	1	3	1	4
District of the Ohio.....	2	3	2	1	1			1		1	1	3
District of the Mississippi.....	2	2		1	2	2	1		2	3	2	3
District of the Great Lakes.....	3	7	2	9	5	2				1	7	7
District of the Pacific.....	3	3	2	2	4	1		2	2	1	2	2
<i>Dislocations</i>	2	1	5	3	3	6	3	1	5	5	2	1
Total cases.....	42											
Northern Atlantic District.....	1	1			1	2	1		2	1		
Middle Atlantic District.....			2		1				1	3	2	
Southern Atlantic District.....					1	1						
District of the Gulf.....			1			2		1				
District of the Ohio.....				1					1			
District of the Mississippi.....	1									1		1
District of the Great Lakes.....			2	1					1			
District of the Pacific.....				1		1	2					
<i>Amputation</i>	2		2	1				1				
Total cases.....	7											
Northern Atlantic District.....												
Middle Atlantic District.....	2		2	1				1				
<i>Non-cicatrizization of Stumps</i>	2											
Total cases.....	2											
Middle Atlantic District.....	2											
<i>Deformity</i>						1						
Total cases.....	1											
Northern Atlantic District.....						1						
<i>Unknown</i>				1					1			
Total cases.....	2											
District of the Mississippi.....				1								
District of the Pacific.....									1			

and Treated (in Hospitals) during the Year ended June 30, 1876—Continued.

NUMBER OF CASES *treated* EACH MONTH.

1875.						1876.					
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
57	49	55	60	63	56	50	43	42	40	53	56
9	5	8	10	12	12	12	9	11	11	14	10
12	10	11	9	6	5	6	4	3	5	10	9
6	6	9	8	8	5	5	8	10	9	6	3
6	4	6	6	5	7	9	10	9	4	4	7
6	4	6	5	5	3	3	2	1	1	2	4
2	3	1	2	3	4	3	2	2	4	4	4
9	10	9	14	15	13	7	2	1	1	8	13
7	7	5	6	9	7	5	6	5	3	5	6
7	6	5	6	8	9	10	6	7	10	8	3
1	2			1	3	4	1	2	2	1	
		2	2	3	1	1	1	1	4	5	2
1	1			1	2	2	1				
1	1	1	1		2		1	1			
1	1		1	1				1	1		
2									1	1	1
	2		1	1		1	1	2	2	1	
1	1		1	1	1	2	1				
3	2	4	3	1	1	1	2	1			
1											
2	2	4	3	1	1	1	2	1			
2	2	2	2	2							
2	2	2	2	2							
					1	1	1				
					1	1	1				
			1					1	1		
			1					1	1		

DISEASES AND INJURIES, &c.

Injuries.*Fractures:*

Total cases.....269

Northern Atlantic District.

Middle Atlantic District.

Southern Atlantic District.

District of the Gulf.

District of the Ohio.

District of the Mississippi.

District of the Great Lakes.

District of the Pacific.

Dislocations:

Total cases.....42

Northern Atlantic District.

Middle Atlantic District.

Southern Atlantic District.

District of the Gulf.

District of the Ohio.

District of the Mississippi.

District of the Great Lakes.

District of the Pacific.

Amputation:

Total cases.....7

Northern Atlantic District.

Middle Atlantic District.

Non-cicatrizization of Stumps:

Total cases.....2

Middle Atlantic District.

Deformity:

Total cases.....1

Northern Atlantic District.

Unknown:

Total cases.....2

District of the Mississippi.

District of the Pacific.

VI.—Relative Proportions of Diseases and Injuries, and given Diseases and Injuries.

1. PROPORTION OF GIVEN DISEASES, PER HUNDRED, OF ALL CASES TREATED.

	Per cent.
Diseases.....	87. 46
Injuries.....	11. 64
All others.....	0. 90

2. PROPORTION OF GIVEN DISEASES, PER THOUSAND, OF ALL DISEASES TREATED.

Diseases.	Per 1,000 of all cases treated.	Diseases.	Per 1,000 of all cases treated.
GENERAL DISEASES, SECTION A.....	250.311	DISEASES OF THE DIGESTIVE SYSTEM.....	111.072
Small-pox.....	3. 437	Tonsillitis.....	3. 609
Measles.....	2. 148	Gastritis.....	3. 179
Enteric fever.....	14. 952	Dyspepsia.....	8. 593
Yellow fever.....	4. 382	Enteritis.....	1. 374
Ague.....	150. 038	Dysentery.....	27. 326
Remittent fever.....	58. 692	Hernia.....	4. 124
Erysipelas.....	8. 077	Diarrhœa.....	34. 974
All other diseases of this group..	5. 585	Fistula in ano.....	2. 749
GENERAL DISEASES, SECTION B.....	345.189	Hæmorrhoids.....	4. 210
Rheumatism.....	117. 813	Hepatitis.....	5. 499
Syphilis.....	181. 318	Jaundice.....	1. 460
Phthisis pulmonalis.....	27. 326	All other diseases of this group..	13. 975
Scurvy.....	8. 421	DISEASES OF THE URINARY SYSTEM.....	49.579
Dropsy.....	2. 148	Bright's disease.....	6. 444
All other diseases of this group..	8. 163	Cystitis.....	3. 265
DISEASES OF THE NERVOUS SYSTEM.....	24.403	Gonorrhœa.....	18. 131
Diseases of the brain and mem- branes.....	2. 234	Bubo.....	1. 460
Paralysis, hemiplegia, and para- plegia.....	7. 562	Epididymitis.....	4. 124
Epilepsy.....	1. 632	Stricture of the urethra.....	11. 343
Neuralgia.....	10. 569	All other diseases of this group..	4. 812
All other diseases of this group..	2. 406	DISEASES OF THE ORGANS OF GENE- RATION.....	18.787
DISEASES OF THE EYE.....	12.030	Orchitis.....	15. 811
Conjunctivitis and ophthalmia...	6. 359	All other diseases of this group..	2. 976
All other diseases of this group..	5. 671	DISEASES OF THE ORGANS OF LOCO- MOTION.....	13.567
DISEASES OF THE EAR AND NOSE....	2.492	Of the bones.....	7. 905
DISEASES OF THE CIRCULATORY SYSTEM.....	9.145	Of the joints.....	4. 545
Valve disease of the heart.....	3. 952	All other diseases of this group..	1. 117
All other diseases of the heart...	1. 804	DISEASES OF THE CELLULAR TISSUE.....	20.795
Diseases of the blood-vessels.....	3. 389	Abscesses.....	19. 936
DISEASES OF THE ABSORBENT SYSTEM.....	1.804	Inflammation.....	0. 859
DISEASES OF THE RESPIRATORY SYSTEM.....	85.671	DISEASES OF THE CUTANEOUS SYSTEM.....	55.155
Bronchitis.....	42. 364	Eczema.....	. 051
Asthma.....	1. 976	Frost-bite.....	7. 819
Pneumonia.....	23. 029	Ulcer.....	28. 615
Hæmoptysis.....	1. 460	Whitlow.....	9. 366
Pleurisy, (including chronic pleu- risy).....	11. 171	All other diseases of this group..	9. 304
All other diseases of this group:	5. 671		

3. PROPORTION OF GIVEN INJURIES, PER HUNDRED, OF ALL INJURIES TREATED.

Injuries.	Per cent. of all cases treated.	Injuries.	Per cent. of all cases treated.
Burns and scalds.....	3. 30	Fractures.....	17. 40
Contusions.....	42. 85	Dislocations.....	2. 71
Sprains.....	10. 14	All other injuries.....	2. 08
Wounds.....	21. 52		

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality among Patients of the Service, during the Year ended June 30, 1876.*

		1875.						1876.						
CAUSE OF DEATH.		July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
TOTAL DEATHS FROM ALL CAUSES.		434	44	31	44	49	31	32	44	31	28	33	37	30
FROM DISEASE		410	40	31	44	45	29	29	43	31	25	33	35	25
FROM OTHER CAUSES		24	4		4	2	3	1		3		2	5	
General Diseases.														
SECTION A.														
TOTAL DEATHS		114	15	9	14	17	10	9	10	4	7	3	9	7
Small-pox		1						5	1	2	1	5		
Total deaths		15												
Middle Atlantic District								3	1					
Southern Atlantic District										1		1		
District of the Ohio		1						2		1	1	4		
Scarlet Fever														1
Total deaths		1												1
Middle Atlantic District														1
Cerebro-spinal Fever		1			1									1
Total deaths		3												
Northern Atlantic District					1									1
Middle Atlantic District		1												
Enteric Fever		4	2	1	2			1			1			1
Total deaths		12												
Northern Atlantic District		2	1	1	2						1			1
Southern Atlantic District		1												
District of the Gulf								a1						
District of the Mississippi		1												
District of the Pacific			1											
Yellow Fever		4		6	3					1				1
Total deaths		15												
Middle Atlantic District				4	2					1				1
District of the Gulf		4		2	1									
Ague			1	2	3	2			2	1		2	1	
Total deaths		14												
Northern Atlantic District					1									
Middle Atlantic District						1								
Southern Atlantic District				1		b1			1					
District of the Gulf			1	1	2				1			2		
District of the Ohio										1				
District of the Great Lakes														1
Remittent Fever		4	5	5	9	5	8	2	1	2		2	1	
Total deaths		44												
Northern Atlantic District			3			2	4							
Middle Atlantic District		1			2	1	1	1				1	1	
Southern Atlantic District		1	c1	1	d2	1	e2					1		
District of the Gulf		1		2	2	1		1	1					
District of the Mississippi		1	1	2	1					1				
District of the Ohio					2		2			1				
Diphtheria			1				1	1						
Total deaths		3												
Northern Atlantic District							1	1						
Middle Atlantic District			f1											
Erysipelas		1				2		1		1	1			1
Total deaths		7												
Middle Atlantic District		1				2				1				
Southern Atlantic District								g1						
District of the Mississippi											1			

VII.—Tabular Statement, by Months and Districts, of Causes of Mortality, &c.—Continued.

CAUSE OF DEATH.	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
General Diseases.												
SECTION B.												
TOTAL DEATHS .....113	10	11	12	8	8	7	10	13	10	4	12	8
<i>Rheumatism</i>	1	1										
Total deaths.....2												
District of the Mississippi.....	1											
District of the Pacific		1										
<i>Syphilis</i>		2					1	2	1		1	
Total deaths.....7												
Middle Atlantic District									1		1	
District of the Gulf		1										
District of the Ohio		1										
District of the Mississippi.....							1					
District of the Pacific								2				
<i>Cancer</i>	1	2	1	2	1			2		1		
Total deaths.....9												
Northern Atlantic District								1				
Middle Atlantic District	1		1							1		
Southern Atlantic District				1								
District of the Gulf		1			1							
District of the Great Lakes								1				
District of the Pacific				1								
<i>Phthisis Pulmonalis</i>	7	6	10	6	7	6	8	9	8	3	11	7
Total deaths.....88												
Northern Atlantic District	1	1	1				1			1		1
Middle Atlantic District	2	1	1	1	3	1	1	3	4		1	2
Southern Atlantic District			1	1	2	1	3	1	1	2	1	
District of the Gulf	2		1			1	2	1			3	1
District of the Ohio	1	3	2			1	1	2	1		2	
District of the Mississippi.....	1		1	1	1		1				3	
District of the Great Lakes		1	1	2	1	1		1				2
District of the Pacific			2	1		1		1	2		1	1
<i>Scrofula</i>						1						
Total deaths.....1												
Southern Atlantic District						1						
<i>Diabetes</i>												1
Total deaths.....1												
Middle Atlantic District												1
<i>Scurvy</i>			1				1					
Total deaths.....2												
District of the Pacific			1				1					
<i>Dropsy</i>	1	1							1			
Total deaths.....3												
Northern Atlantic District									1			
Middle Atlantic District	1											
District of the Ohio		1										
Local Diseases.												
TOTAL DEATHS .....183	15	11	18	20	11	13	23	14	8	26	14	10
DISEASES OF THE NERVOUS SYSTEM.....		2			1			1	3		5	
Total deaths.....12												
<i>Cerebral Meningitis</i>							1	2		2		
Total deaths.....5												
Middle Atlantic District							1	1				
Southern Atlantic District										1		
District of the Pacific								1		1		

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality, &c.*—Continued.

CAUSE OF DEATH.	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Softening of the Brain</i>				1				1				
Total deaths.....	2											
District of the Pacific.....				1				1				
<i>Apoplexy</i>	2									3		
Total deaths.....	5											
North Atlantic District.....										1		
Middle Atlantic District.....	1									1		
District of the Ohio.....										1		
District of the Great Lakes.....	1											
<i>Fibrous Tumour of Brain</i>							1					
Total deaths.....	1											
Northern Atlantic District.....							1					
<i>Paralysis</i>		1	1				1				1	1
Total deaths.....	5											
Middle Atlantic District.....			1									
District of the Gulf.....							1				u 1	1
District of the Pacific.....		1										
<i>Hemiplegia</i>	1						2					1
Total deaths.....	4											
Middle Atlantic District.....	1						1					1
District of the Ohio.....							1					
<i>Paraplegia</i>				1			1					
Total deaths.....	2											
District of the Mississippi.....				1								
District of the Pacific.....							1					
<i>Tetanus</i>			1								1	
Total deaths.....	2											
Southern Atlantic District.....			1								1	
<i>Epilepsy</i>			1									
Total deaths.....	1											
District of the Gulf.....			1									
DISEASES OF CIRCULATORY SYSTEM..	2	3	2	3	4	2	2	1	1	4	2	2
Total deaths.....	28											
<i>Pericarditis</i>				2	1	2			1	3	1	
Total deaths.....	10											
District of the Ohio.....				2	1	2			1		1	
District of the Mississippi.....										v 2		
District of the Great Lakes.....										1		
<i>Endocarditis</i>			1				1					
Total deaths.....	2											
District of the Ohio.....			w 1				1					
<i>Valve-disease of Heart</i>	1	2	1	1	1			1			1	1
Total deaths.....	9											
Northern Atlantic District.....											1	
Middle Atlantic District.....		2										
Southern Atlantic District.....	1			1								
District of the Gulf.....							1					
District of the Great Lakes.....			1									1
District of the Pacific.....					1							
<i>Myocarditis</i>												1
Total deaths.....	1											
District of the Gulf.....												x 1
<i>Hypertrophy of Heart</i>		1			1							
Total deaths.....	2											
Middle Atlantic District.....					1							
District of the Pacific.....		1										

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality, &c.*—Continued.

	1875.						1876.					
CAUSE OF DEATH.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
Fatty Degeneration of Heart.....							1					
Total deaths.....	1											
Middle Atlantic District.....							y 1					
Occlusion.....	1											
Total deaths.....	1											
District of the Pacific.....	1											
Aneurism of the Aorta.....					1					1		
Total deaths.....	2											
Northern Atlantic District.....										1		
District of the Pacific.....					2							
DISEASES OF DUCTLESS GLANDS.....												
Total deaths.....	1											
Abscess of Thyroid Gland.....					1							
Total deaths.....	1											
Southern Atlantic District.....					1							
DISEASES OF RESPIRATORY SYSTEM.....												
Total deaths.....	47	2	1	3	7	1	2	6	5	5	11	4
Laryngitis.....	1										1	
Total deaths.....	2											
Middle Atlantic District.....	1											
District of the Mississippi.....										1		
Bronchitis.....			2	1			1		1	1	1	
Total deaths.....	7											
Middle Atlantic District.....			1									
District of the Gulf.....										1	1	
District of the Ohio.....							1					
District of the Mississippi.....			1						1			
District of the Pacific.....				1								
Pneumonia.....	1			5	1	1	5	5	4	9	2	
Total deaths.....	33											
Northern Atlantic District.....					1	1		2		1		
Middle Atlantic District.....			2				aa 2			2		
Southern Atlantic District.....							bb 1		3			
District of the Gulf.....	1						1	cc 3			1	
District of the Ohio.....										3		
District of the Mississippi.....							1		1	3		
District of the Great Lakes.....				1							1	
District of the Pacific.....				2								
Abscess of the Lung.....		1										
Total deaths.....	1											
District of the Great Lakes.....		1										
Gangrene of the Lungs.....				1								
Total deaths.....	1											
Northern Atlantic District.....				1								
Congestion of the Lungs.....			1									
Total deaths.....	1											
District of the Mississippi.....			1									
Hæmoptysis.....						1						
Total deaths.....	1											
District of the Ohio.....						1						
Empysema.....											1	
Total deaths.....	1											
Southern Atlantic District.....											1	

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality, &c.*—Continued.

CAUSE OF DEATH.	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Hepatic Abscess</i>	1			2		2	1					
Total deaths.....	6											
Middle Atlantic District.....							hh 1					
District of the Gulf.....				2		ii 2						
District of the Mississippi.....	1											
<i>Cirrosis of Liver</i>		1										
Total deaths.....	1											
Southern Atlantic District.....		1										
<i>Jaundice</i>						1				1	1	
Total deaths.....	3											
Southern Atlantic District.....										1		
District of the Ohio.....						1						
District of the Great Lakes.....											1	
<i>Peritonitis</i>				1								
Total deaths.....	1											
Northern Atlantic District.....				1								
<i>Ascites</i>							1	1				
Total deaths.....	2											
District of the Gulf.....								1				
District of the Mississippi.....							1					
DISEASES OF THE URINARY SYSTEM.....	1	2	2	2	1	1	3	2	2		1	2
Total deaths.....	19											
<i>Bright's Disease</i>		2	2			1	3	2	2		1	2
Total deaths.....	15											
Northern Atlantic District.....		1	1						1			jj 1
Middle Atlantic District.....						1	1	2	kk 1			1
District of the Ohio.....							2				1	
District of the Great Lakes.....		1	1									
<i>Cystitis</i>				1								
Total deaths.....	1											
Southern Atlantic District.....				1								
<i>Hæmaturia</i>	1											
Total deaths.....	1											
District of the Great Lakes.....	1											
<i>Stricture of Urethra</i>				1	1							
Total deaths.....	2											
District of the Gulf.....					1							
District of the Great Lakes.....				1								
DISEASES OF ORGANS OF LOCOMOTION.....											1	
Total deaths.....	1											
<i>Necrosis</i>											1	
Total deaths.....	1											
Middle Atlantic District.....											1	
DISEASES OF THE SPINE.....			2									
Total deaths.....	2											
<i>Psoas Abscess</i>			2									
Total deaths.....	2											
Southern Atlantic District.....			2									
Poisons.												
TOTAL DEATHS.....	3			1	1	1						
<i>Delirium Tremens</i>				1	1	1						
Total deaths.....	3											
Middle Atlantic District.....						1						

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality, &c.—Continued.*

CAUSE OF DEATH.	1875.						1876.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Injuries, Local.												
<i>Fracture and Amputation of the Femur</i>											1	
Total deaths.....	1											
Middle Atlantic District.....											mm1	
<i>Compound Comminuted Fracture of both Bones of Leg</i>	1											
Total deaths.....	1											
Middle Atlantic District.....	1											

- a* Admitted for remittent fever.

b Admitted for lumbago.

c Admitted for diarrhœa.

d One admitted for bronchitis, acute.

e One admitted for bronchitis.

f Admitted for diarrhœa.

g Admitted for abscess of face.

h Admitted for fracture, radius.

i Admitted for erysipelas.

j Admitted for rheumatism, sub-acute.

k Admitted for synovitis.

l Admitted for rheumatism, acute.

m Admitted for cancer of liver.

n One admitted for pneumonia.

o Admitted for soft chancre.

p One admitted for bronchitis.

q One admitted for bronchitis.

r Admitted for rheumatism.

s Admitted for erysipelas.

t Admitted for fracture of thigh.

u Admitted for soft chancre.

v One admitted for rheumatism, muscular.

w Admitted for rheumatism, acute.

x Admitted for hæmatemesis.

y Admitted for intermittent fever.

z Admitted for spinal neuralgia.

aa One admitted for rheumatism, muscular.

bb Admitted for rheumatism, acute.

cc One admitted for ague, tertian.

dd Admitted for fistula-in-ano.

ee Admitted for intermittent fever.

ff One admitted for ague, tertian.

gg One fell from a window while delirious from typhoid fever.

hh Admitted for ague, quotidian.

ii One admitted for dyspepsia.

jj Admitted for necrosis, femur.

kk Admitted for rheumatism, acute.

ll Admitted for syphilis; contracted pneumonia, and in delirium fell into a tank and was drowned.

mm Admitted for rheumatism, sub-acute.

VIII.—*Ratio of Deaths from Specific Causes.*

Deaths from—	Per 100 from all causes.	Deaths from—	Per 100 from all causes.
GENERAL DISEASES, SECTION A.....	26.20	DISEASES OF DUCTLESS GLANDS.....	0.23
Small-pox.....	3.45	Abscess of thyroid gland.....	0.23
Scarlet fever.....	0.23	DISEASES OF CIRCULATORY SYSTEM..	6.45
Cerebro-spinal fever.....	0.69	Diseases of the heart.....	5.99
Enteric fever.....	2.76	Aneurism of the aorta.....	0.46
Yellow fever.....	3.45	DISEASES OF RESPIRATORY SYSTEM..	12.20
Ague.....	3.20	Bronchitis.....	1.61
Remittent fever.....	10.12	Pneumonia.....	7.60
Diphtheria.....	0.69	Other diseases of this group.....	2.99
Erysipelas.....	1.61	DISEASES OF DIGESTIVE SYSTEM....	12.19
GENERAL DISEASES, SECTION B.....	26.02	Dysentery.....	3.68
Rheumatism.....	0.46	Diarrhœa.....	2.99
Syphilis.....	1.61	Other diseases of this group.....	5.52
Cancer.....	2.07	DISEASES OF URINARY SYSTEM.....	4.37
Phthisis pulmonalis.....	20.27	Bright's disease.....	3.45
Scrofula.....	0.23	Other diseases of this group.....	0.92
Diabetes.....	0.23	DISEASES OF ORGANS OF LOCOMOTION.	0.23
Scurvy.....	0.46	INJURIES.....	4.60
Dropsy.....	0.69	ALL OTHER CAUSES.....	2.30
DISEASES OF THE NERVOUS SYSTEM..	6.21		
Diseases of the brain.....	2.76		
Other diseases of this group.....	3.45		

IX.—*Statement, by Districts, of the Number of Hospital Patients treated each Month during the Year ended June 30, 1877.*

District.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
TOTAL.....	1,579	1,698	1,762	1,674	1,635	1,834	1,985	1,709	1,750	1,641	1,518	1,470
North Atlantic.....	202	209	231	221	206	218	208	164	178	195	205	194
Middle Atlantic.....	255	239	245	235	242	275	303	244	292	253	244	231
South Atlantic.....	166	220	256	167	215	260	282	258	255	233	212	177
The Gulf.....	162	170	189	229	217	229	286	244	238	208	154	143
The Ohio.....	209	211	173	191	171	174	178	192	210	214	190	164
The Mississippi.....	205	235	224	184	164	176	256	194	205	202	196	181
The Great Lakes.....	228	245	253	222	217	297	277	228	187	152	161	213
The Pacific.....	152	169	191	225	203	205	195	185	185	184	156	167

X.—*Ratio of Hospital Patients Treated in each District, same year.*

District.	Per cent. of total patients.	District.	Per cent. of total patients.
North Atlantic.....	11. 91—	The Ohio.....	11. 45—
Middle Atlantic.....	14. 75—	The Mississippi.....	12. 97—
South Atlantic.....	13. 11+	The Great Lakes.....	12. 72—
The Gulf.....	12. 83+	The Pacific.....	10. 24—

XI.—*Average Duration of Treatment (in Hospital) in each District, same year.*

District.	Average duration.	District.	Average duration.
	<i>Days.</i>		<i>Days.</i>
North Atlantic.....	31. 72	The Mississippi.....	24. 22
Middle Atlantic.....	31. 20	The Great Lakes.....	31. 70
South Atlantic.....	30. 94	The Pacific.....	32. 24
The Gulf.....	26. 61		
The Ohio.....	27. 12	General average.....	29. 53

APPENDIX.

APPENDIX.

COMMENTS ON THE CONTRIBUTED PAPERS.

THE ADOPTION OF THE METRIC SYSTEM OF WEIGHTS AND
MEASURES FOR MEDICAL AND PHARMACAL PURPOSES.

PHYSICAL EXAMINATION OF SEAMEN.

RIVER EXPOSURE AND ITS EFFECTS UPON THE LUNGS.

YELLOW FEVER AT SAVANNAH, GA., IN 1876.

YELLOW FEVER AT SAVANNAH AND BRUNSWICK, GA., IN 1876.

YELLOW-FEVER EPIDEMIC AT FERNANDINA, FLA., IN 1877.

COMMENTS ON THE CONTRIBUTED PAPERS.

Although the metric system of weights and measures may not be adopted by the people for general purposes without diligent and extended preparation, experience has shown that it is readily used by chemists, pharmacists, and physicians. Professor Oldberg's report greatly simplifies the question of acquiring a sufficient familiarity with such metric weights and measures as are used in medicine and pharmacy, and it is not improbable that the real obstacle in the way of their official adoption by the next Pharmacopœial Convention will be the unwillingness of some to practically ascertain for themselves the degree of difficulty attending a change. It is believed that the adoption of the metric system of weights and measures by the Marine-Hospital Service, in the purveying of medical supplies and for other official medical and pharmacal purposes, would occasion no serious inconvenience to the medical officers, and the metric glassware, which, without any increased cost, would be furnished for that purpose, could not but assist in some degree the popularization of the system by increasing the number of practical object lessons. Tables showing the relation of the metric units to the units of the apothecaries' weights and measures, and *vice versa*, and a metric posological table, are appended to the report.

The paper by Surgeon Bailhache on the "Physical Examination of Seamen" furnishes a continuation of the discussion of this subject in former annual reports of this office. This question is one of vital importance not only to the Marine-Hospital Service and the seamen, but to the shipping interests and travellers by water as well.

Surgeon Wyman's paper on "River Exposure and its Effects upon the Lungs" contains practical suggestions which have a direct bearing upon one of the most fruitful causes of disease among the river boatmen, and it is hoped that the dangerous exposure to which these men are unnecessarily subjected, as described, may be diminished if it cannot be wholly obviated. The owners and masters of vessels would do well to bear in mind that the physical welfare of their men is an important factor in the successful prosecution of their business.

The reports on yellow fever at Savannah and Brunswick, Ga., in 1876, and at Fernandina, Fla., in 1877, are published without comment. It

has, from the first, been sought to make the annual report of this office a repository for facts and reports concerning yellow fever, the history of the introduction of which, in this country, is so inseparably connected with the mercantile marine.

THE ADOPTION OF THE METRIC SYSTEM
OF WEIGHTS AND MEASURES

FOR MEDICAL AND PHARMACAL PURPOSES.

THE ADOPTION OF THE METRIC SYSTEM OF WEIGHTS AND MEASURES

FOR MEDICAL AND PHARMACAL PURPOSES.

[BEING A REPORT TO THE SURGEON-GENERAL OF THE MARINE-HOSPITAL SERVICE WITH REFERENCE TO THE
USE OF THE METRIC SYSTEM IN THE PURVEYING OF MEDICAL SUPPLIES FOR THAT SERVICE.]

BY OSCAR OLDBERG, Phar. D.,

Chief Clerk and Acting Medical Purveyor, United States Marine-Hospital Service.

To the SURGEON-GENERAL,

UNITED STATES MARINE-HOSPITAL SERVICE:

In obedience to your instructions, I have the honor to report on the advisability of the immediate adoption of the French metric system in all the official transactions and records relating to the purveying of medical supplies in the Marine-Hospital Service; and, as the use of metric weights and measures for purveying purposes would virtually lead to their employment also in prescribing and dispensing, I shall accordingly devote a portion of my report to the latter question.

The disadvantages of the inharmonious systems of weights and measures still in use in the United States, Great Britain, and other countries, and the advantages, on the other hand, of an uniform and harmonious international or universal system of measurement of distance, surface, volume, weight, and value, are familiar.

The early introduction, however, of the French decimal system, based on the *metre*, as the best yet devised, meets with warm, if not successful, opposition, although it is, perhaps, generally admitted that the final and complete adoption in the United States of the metric weights and measures, provided we prepare for it, will sooner or later certainly come. Our coinage, fortunately decimal, closely approaches a comparatively simple numerical relation to the metric unit of weight—the one-dollar gold piece weighing (within 3 per mille) one and two-thirds grammes, and consequently the three-dollar gold piece, five grammes, (within 3 per mille.) It is believed that the Government not only could, but ought to aid the people in learning to know and use the metric system, which might be done in various ways. An effort to compel its immediate adoption by the people, would probably prove futile, or productive of great evil; but the agents of the Government might well be expected and required to employ that system exclusively

in certain official transactions, and it might be thoroughly taught in the public schools in order that its simplicity and practical superiority may be demonstrated. Whether, however, the introduction of the metric system for general purposes, already legalized, be near or distant, and whether the supposition that its use will soon by the Congress be made obligatory on the part of the officers of the Government be correct or not, I am quite confident that the present is as good a time as any for the adoption of metric weights and measures for medical and pharmacal purposes, and I may briefly refer to some of the reasons upon which the proposed rejection of the apothecaries' weights and measures and the preference for the metric system are based.

As the different systems and standards in use prior to the construction of the metric system, or afterwards adopted and still largely used, were not derived from any constant quantity in nature, while others have been contrived which are compromises between the old and the new, we find upon a comparison of the multifarious pounds and their subdivisions, and of the various grains upon which they were originally based, that the term "pound" is applied to quantities equal to 500 grammes, 453.59 + grammes, 425 grammes, 373.25 — grammes, or 357.66 + grammes, &c., as the case may be, and that the term "grain" is applied to quantities varying from 0.045 — to 0.073 + grammes; the difference between the largest and the smallest "grain" exceeding fifty per cent. In some countries the pound is subdivided into 16 ounces; in others, into 12 only. Sometimes the ounce contains 16 drachms; at other times only 8. One ounce means 480 grains; another 437½ such grains; another again 480 grains of a different value. One scruple consists of 20 grains, and another of 24. One pound contains 7,200 grains, and other pounds, respectively, 7,000, 6,912, and 5,760 grains. Finally, two or more systems, resembling each other chiefly in their arbitrary and complex character, are simultaneously used in the same country. Even the term "minim," though used only in Great Britain and the United States, is applied to different quantities. Add to these conflicting terms, subdivisions, and values the further fact that our existing units of weight and measure bear no simple relation one to the other, having been originally fixed without reference to each other.

The essential characteristics of a system of weights and measures which may entitle it to cosmopolitan adoption as superior to the old arbitrary and incongruous systems, or rather no-systems, are: 1st. That it rest upon a basis of some geographical magnitude; 2d. That it be a decimal system; 3d. That the unit for linear measurement be the primary unit of the whole system, to which the units for measurement

of surface, volume, and weight, derived from it, shall bear the simplest relation possible. These conditions are fulfilled by the metric system based upon the metre.

The changes requisite in order to bring about simple numerical relations between the units of our weights, measures, and coinage and the metric units are comparatively slight, and various propositions have therefore been made to that end. The temptation to try to utilize the merits of the metric system without abandoning the old seems to have been great and general. The metric system has been almost universally recognized as the basis upon which will be established any future systems that may be used, should that system itself not be adopted, and intermediate systems have been constructed accordingly, perhaps chiefly to prepare the way for the metre, the litre, the gramme, &c., but sometimes to insure international correlation only, the importance of which is of course conceded by every one. But we are accustomed to think that the familiar units in which we express quantities in our daily business denote such quantities of the ordinary commodities as are generally considered to be the most convenient in supplying our common wants—a proposition which does not bear reflection. We are, moreover, able to fix in our mind the approximate bulk of a certain quantity by weight of any given commodity, or the weight of a certain volume of another, and so we are loth to give up our “gallon,” “pint,” “minim,” our “pound,” “ounce,” and “grain,” &c., unless we can get some other units nearly resembling these in value, *or at least familiar to us*. The decimal system also encounters opposition from many who would prefer to be able to count the fractional parts of the units by halves, quarters, eighths, sixteenths, thirty-seconds, and sixty-fourths. The difficulties, therefore, in the way of a general and exclusive adoption by the people of an entirely new system of weights and measures—even as simple, rational, and labor-saving as the metric system—are quite formidable. In several countries, and even in France itself, compromise systems have been tried, the units of which were simple multiples of the gramme with decimal subdivisions.

The present adoption by the practitioners of medicine and pharmacy, however, of metric weights and measures is considered entirely practicable and advantageous. In the pharmacopæias of Germany and Sweden, and other countries where the metric system is not in general use, nor even legalized for general purposes, the gramme and the centigramme have been made the official weight units, and the use of the old units by pharmacists forbidden, the inconvenience occasioned by the change being found quite inconsiderable. In both countries just

named the transition stages were provided for by the introduction of intermediate decimal systems bearing simple relations to the gramme; but the utility of such mixed systems is doubtful. Those directly interested—the pharmacists—would, at least by the light of experience, have preferred an immediate change; and the fact that an intermediate system, differing but slightly from either the old or the new, is so readily constructed and used is itself sufficient proof that the disturbance produced in the practice of intelligent professional men by a direct change from grains to grammes is not so great as might be supposed.

The principal objection to a change of weights and measures, in the practice of medicine and pharmacy, seems to be, however, that we cannot, without considerable difficulty, dissociate in our minds the dose of any medicinal agent from the troy grain or minim, because doses are a matter of mere memory, we have learned them by heart in those terms, and we must put aside the knowledge already acquired and learn something else in its place. It is urged that old practitioners cannot or will not be prevailed upon, and should not even be expected, to use new units, terms, or denominations of quantity in their prescriptions. They will continue, it is said, to write ounces, drachms, scruples, and grains; and fluid ounces, drachms, and minims. But this, if true, does not seem to be sufficient cause for rejecting the best for the bad. Changes of weights and measures have often been brought about, and units of weight or measure have undergone change of value even without a change of name, which is infinitely more confusing, and yet no great disturbance is spoken of as having taken place in connection therewith. The younger men, it would seem, can very well afford to take this risk, and even do all the work there is to be done. Let those who are unable to follow them be borne along, and leave the unwilling ones to their choice. It is easy enough, as I will presently endeavor to show, to translate ounces, grains, &c., should prescriptions continue to be written in those terms, into terms of the metric system. The experience, moreover, of those who have used the metric system of weights at all, has been that it does not require much practice to be able to think of 2 grammes of ipecacuanha, or of 0.002 grammes of strychnia, as representing certain volumes and doses, without first translating these expressions into about 30 grains, and $\frac{1}{32}$ grain, respectively. The same is true of measures. In the writer's experience a moderate familiarity with the use of metric weights and measures may be readily acquired.

A general adoption in American and English works on *Materia Med-*

idea of the terms of the metric system, side by side with those of the apothecaries' weights and measures, in stating the doses of medicines, would greatly facilitate the general adoption of the former in practice.

There is good reason to hope that the Pharmacopœial Convention which is to meet in 1880, to provide for the sixth revision of the Pharmacopœia of the United States, will recognize the superiority of the metric system and adopt it for use in that work. The late Assistant Surgeon B. F. CRAIG of the United States Army, offered in the Pharmacopœial Convention of 1870, a resolution instructing the Committee of Revision "to include some part of the metrical system in the list of officinal weights and measures." Doctor CRAIG stated to the writer that his preference was for the introduction of the "decigramme" as the unit most nearly resembling our troy grain, one decigramme being, for the purposes of the practitioners of medicine and pharmacy, practically equivalent to $1\frac{1}{2}$ grains. The resolution was passed, but the instruction was not carried out, though no reason is given by the committee for ignoring it. In the Pharmacopœias of those countries which have adopted the metric system of weights for medicinal purposes the "gramme" and "centigramme" are the only units referred to, because the most convenient, and their example ought by all means to be followed. Should the next Convention decide to adopt the metric system, it is, therefore, to be hoped that the terms "gramme" and "centigramme" alone may be sanctioned as the official units of weight, and the term "cubic centimetre" as the official unit of measure, if any. The adoption of more than two units for either weights or measures should be carefully avoided. The reporter, for one, believes that all quantities in medicine and pharmacy should be determined by weight, and that measures should be discarded; but so long as cupfuls, table-spoonfuls, teaspoonfuls, and drops are prescribed there is probably no hope for such a radical innovation, although it has many strong advocates.

The time and labor which would be saved in computation and accounts by the adoption of the metric system for purveying purposes, cannot be but a powerful argument in its favor. As to the willingness of manufacturers, importers, and dealers to give quotations in metric terms, and put up supplies in metric quantities, I anticipate no difficulty. To find the exact value of any number of grammes of any article, the price per avoirdupois pound being known, is a very simple process: Multiply the number of grammes with the price per avoirdupois pound, and then divide the product by 453.6—the number of grammes in the avoirdupois pound. This process is certainly not more difficult than

the computations constantly found necessary in preparing invoices in which the quantities are expressed in pounds, ounces, drachms, and grains. For the sake of greater clearness I may be pardoned for quoting an example: 100,000 grammes of potassium iodide are to be priced; the manufacturer's quotation is \$3.10 per avoirdupois pound; to find the total value of 100,000 grammes at that price, multiply the 100,000 by 3.10 and divide the product, 310,000, by 453.6, which will give the quotient \$683.42 as the answer sought. In the same manner the exact value of any number of grammes of any article may be computed from the price per avoirdupois ounce, by multiplying the number of grammes by the ounce-price, and then dividing the product by 28.35, the number of grammes in an ounce avoirdupois. The supplies will necessarily have to be purchased in bulk and put up by the medical purveyor, because the packages cannot be made uniform in size without great waste, the quantities required at different stations being quite various, according to the nature of the arrangements made for the care of the patients of the Service. Should, in any case, the cost of any article be greater by reason of the unusual quantity ordered, there can be no objection to purchasing the original package most nearly resembling the metric quantity called for, which in every case is at best only an approximate estimate. The metric glass-ware required to put up the supplies I have ascertained will cost no more than bottles of the usual capacities, and would serve as valuable object-lessons.

With reference to the use of the metric weights and measures in prescribing, preparing, and dispensing medicines, I beg to invite attention to the important and well-known fact that the difference between a minimum and a maximum dose of medicine frequently varies from one hundred to many hundred per cent., and that the dose of any medicinal agent is in no case fixed. It is not the "tablespoonful" and "teaspoonful" doses only that vary from 25 to 100 per cent. on account of the common difference in the size of the spoons, but the quantity by weight or measure to be given in a particular case is different according to the experience of the individual practitioner, which chiefly depends upon the strength and quality of the article he has been accustomed to administer. And again, what the most experienced physician believes, when he writes his prescription, will be the proper dose, may, very probably, be afterwards found too much or too little, and require correction. The dose of any medicine is usually supposed to be one grain, or a whole number of grains, or an even fraction of a grain; it is never $15\frac{1}{2}$ grains, or $14\frac{1}{2}$ grains, or 19 grains, or $\frac{1}{7}$ grain. It therefore depends to a certain extent upon the unit of weight itself.

There can be, then, no strict rule as to doses. They are purely empirical. A difference of even one-tenth part, more or less, would be comparatively trifling in a dose of medicine, or in the strength of a preparation. Who could discover any difference in medicinal action between a fluid extract made of seventeen and six-tenths troy ounces to the pint and one made of sixteen troy ounces to the pint? or who could discern a difference between the effect of one-half grain of morphia and the effect of eleven-twentieths grain of morphia? I believe that I am quite safe in asserting that the average prescription-scales used by dispensing pharmacists would not indicate a variation in weight between one-half and eleven-twentieths grain, and I leave it to the judgment of medical practitioners whether any difference in action would or could be appreciated.

One gramme is equal to 15.43234874 troy grains.—(*Professor Miller.*)* The difference between 15 and 15.43234874 is about one-thirty-fifth part, or 0.02882 + per cent. (The fifteenth part of a gramme is 1.02882 + troy grain.) Strike out the fraction as being practically insignificant in medicine and pharmacy, and we have—

$$\begin{aligned} 1 \text{ gramme} &= 15 \text{ grains troy;} \\ 2 \text{ grammes} &= 30 \text{ grains troy;} \\ 4 \text{ grammes} &= 1 \text{ drachm troy;} \\ 32 \text{ grammes} &= 1 \text{ ounce troy.} \end{aligned}$$

I conclude, from what has been said above concerning doses, that the one-thirty-fifth part, more or less, in each dose, may be safely ignored. Thus, in reference to medicine and pharmacy, the simple numerical ratio of 15 to 1 can be properly applied in converting units of the one system of weights into units of the other, and the plea of troublesome and difficult computations, as against change, becomes feeble.

One grain is for that purpose conveniently taken to be equivalent to 0.066 grammes, or 6.6 centigrammes, which may be readily remembered, and any number of troy grains can be converted into the corresponding number of decigrammes by subtracting one-third, the result thus arrived at being sufficiently accurate, and the conversion of troy grains into grammes, decigrammes, or centigrammes, is then a simple mental process.

Upon a comparison of the apothecaries' measures with metric cubic measures, we find that one cubic centimetre is equal to 16.2311678 + minims. One minim, unfortunately, does not weigh one grain, but

* I am indebted to Professor E. B. ELLIOTT, of the Bureau of Statistics, for the determinations herein accepted. O. O.

about five per cent. less. If the minim weighed one grain, there would be the same number of minims in the cubic centimetre as there are grains in the gramme. The difference, however, between 15 and 16.2311678+ is about one-twelfth part, or 0.08208—. The fifteenth part of one cubic centimetre is 1.08208— minims. The fraction, even in this case, is practically insignificant in medicine and pharmacy, and may be ignored. We would then have—

- 1 cubic centimetre = 15 minims;
- 2 cubic centimetres = 30 minims;
- 4 cubic centimetres = 1 fluid drachm;
- 32 cubic centimetres = 1 fluid ounce;

and the conversion of minims into cubic centimetres becomes as simple a process as is the conversion of grains into grammes.

The following very simple rules for the conversion of quantities expressed in the terms of the old system into their equivalents expressed in terms of the new system, and, *vice versa*, will be found valuable, and are easily applied. With the aid of these rules, there will be no difficulty in writing or dispensing prescriptions, or in making preparations, employing metric terms and quantities, even without any previous knowledge of the latter. I believe that the application of these rules for a brief time will result in a sufficient familiarity with the metric system to render their further use superfluous. A moderate acquaintance with metric quantities, by linear measure, by weight, and by volume, is soon acquired, such as will obviate a necessity for thinking in inches or grains or minims and then translating these units into the corresponding number of metres, grammes, or cubic centimetres:

RULES FOR CONVERTING TERMS OF THE UNITED STATES APOTHECARIES' WEIGHTS AND MEASURES INTO THEIR RESPECTIVE EQUIVALENTS IN TERMS OF THE METRIC SYSTEM.

1. TO EXPRESS QUANTITIES BY WEIGHT OF THE APOTHECARIES' SYSTEM IN METRIC TERMS, OR TO WRITE MEDICAL PRESCRIPTIONS IN METRIC WEIGHTS.

RULE A.—*Reduce each quantity to troy grains; then divide the number by 10, (or move the decimal point one place to the left,) and from the quotient subtract one-third. The remainder is in each case the number of grammes representing (nearly) the same quantity. Or,*

RULE B.—*Reduce each quantity to apothecaries' drachms, and multiply the number by 4. The product is in each case the number of grammes representing (nearly) the same quantity. Or,*

RULE C.—*Reduce each quantity to troy ounces, and multiply the number by 32.* The product is in each case the number of grammes representing (nearly) the same quantity.

The gramme, as we have already stated, is equal to 15.43234874 troy grains. In preparing the above rules the fraction has been ignored, as for medical and pharmaceal purposes one gramme and 15 troy grains may be safely considered as equal quantities. In Rule A, therefore, a division by 15 may, if preferred, be substituted for the division by 10 followed by a subtraction of one-third from the quotient, with the same result. The difference between 15 and 15.43234874 being $2.82 +$ per cent., the deviation from exactness in the answer arrived at by either of the above rules corresponds to an excess of $28.82 +$ grains for every 1,000 grains. To illustrate: By Rule B, 4,000 grammes would be (nearly) equivalent to 1,000 apothecaries' drachms; but 4,000 grammes is equal to exactly 61,729.40+ troy grains, while 1,000 apothecaries' drachms is only 60,000 troy grains. The deviation from exactness, therefore, in the answer arrived at by Rule B, (as also in the answers arrived at by Rules A and C,) is equivalent to an excess of $1,729.40 +$ troy grains for every 1,000 apothecaries' drachms, or about 14 grains for every troy ounce, or $28.82 +$ grains for every 1,000 grains, or less than 2.9 per cent.

To insure greater accuracy, if in any case deemed necessary, 3 per cent. may be deducted from the answer arrived at by either of the Rules A, B, and C. The deviation from exactness will then be reduced to one-fifth of one per cent., the remainder being less than the exact equivalent sought by only 2.04 grains for every 1,000 grains, or about one grain for every troy ounce.

TO CONVERT TROY GRAINS INTO DECIGRAMMES it is only necessary to *deduct one-third*; and

TO CONVERT TROY GRAINS INTO CENTIGRAMMES *multiply the number by 10, and from the product subtract one-third*—the deviation from exactness in the answers arrived at in both cases being the same as in Rules A, B, and C, given above.

2. TO EXPRESS QUANTITIES BY MEASURE OF THE APOTHECARIES' SYSTEM IN METRIC TERMS, OR TO WRITE MEDICAL PRESCRIPTIONS IN METRIC CUBIC MEASURES.

RULE D.—*Reduce each quantity to minims; then divide the number by 10, (or move the decimal point one place to the left,) and from the quotient subtract one-third.* The remainder is in each case the number of cubic centimetres representing (nearly) the same quantity. Or,

RULE E.—*Reduce each quantity to fluid drachms, and multiply the number by 4.* The product is in each case the number of cubic centimetres representing (nearly) the same quantity. Or,

RULE F.—*Reduce each quantity to fluid ounces, and multiply the number by 32.* The product is in each case the number of cubic centimetres representing (nearly) the same quantity.

One metre is equal to 39.370432 inches.—(*Captain Clarke.*) Hence one cubic centimetre is equal to 0.0610253868 — cubic inches, or to 16.2311678 + minims, (there being 61,440 minims in each wine-gallon of 231 cubic inches.) In preparing the above rules 1 cubic centimetre and 15 minims have been considered as equal quantities, which, for medical and pharmacal purposes, is sufficiently accurate. In Rule D, therefore, a division by 15 may, if preferred, be substituted for the division by 10 followed by a subtraction of one-third from the quotient, with the same result. The difference between 15 and 16.2311678 + is 8.208 — per cent., and hence the deviation from exactness in the answer arrived at by either of the above rules corresponds to an excess of 82.08 — minims for every 1,000 minims. To illustrate: By Rule E, 4,000 cubic centimetres would be (nearly) equivalent to 1,000 fluid drachms; but 4,000 cubic centimetres is equal to exactly 64,924.67 + minims, while 1,000 fluid drachms is only 60,000 minims. The deviation from exactness, therefore, in the answer arrived at by Rule E (as also in the answers arrived at by Rules D and F) is equivalent to an excess of 4,924.67 + minims for every 1,000 fluid drachms, or about 41 minims for every fluid ounce, or 82.08 — minims for every 1,000 minims, or 8.2 per cent.

To insure greater accuracy, if in any case deemed necessary, 8 per cent. may be deducted from the answer arrived at by either of the Rules D, E, and F. The deviation from exactness will then be reduced to less than one-half of one per cent., the remainder being less than the exact equivalent sought by only 4.49 — minims for every 1,000 minims, or less than $2\frac{1}{4}$ minims for every fluid ounce.

TO CONVERT MINIMS INTO CENTILITRES it is only necessary to *deduct one-third*; and

TO CONVERT MINIMS INTO MILLILITRES *multiply the number by 10, and from the product subtract one-third*—the deviation from exactness in the answers arrived at in both cases being the same as in Rules D, E, and F, given above.

The important advantage of a simple relation between the units of weight and the units of measure is acknowledged, and is one of the strong arguments in favor of the metric system, the weight unit or “gramme” being the weight of one cubic centimetre of distilled water of maximum density under the pressure of one atmosphere. The minim and the grain, however, have no simple relation to each other; but as the difference between the weight of one minim of distilled water of maximum density under the pressure of one atmosphere, and the weight of a troy grain, is comparatively small, it has been ignored entirely in preparing the rules for the conversion of apothecaries’ measure into metric measure, (Rules D, E, and F,) and hence the arithmetical processes in the rules for converting old measures into new are respectively identical with the processes given in the rules for converting weights, as will be seen upon comparison of Rule D with Rule A, Rule E with Rule

B, and Rule F with Rule C. For this purpose one minim is considered as weighing one grain, one fluid drachm as weighing one drachm, and one fluid ounce as weighing one ounce. (See below the "table of approximate equivalents of apothecaries' weights and measures in metric terms, as obtained in accordance with the rules herein given.")

It will be seen that if the three Rules A, B, and C, be all applied in converting the several quantities by weight in any one prescription or formula, *the original proportions between these quantities will still be preserved*, the deviation from exactness being invariable. It will also be seen that the three Rules D, E, and F, may be all applied in converting the several quantities by measure in any one prescription or formula *without disturbing the original proportions* between said quantities. Thus, if all the ingredients in the formula be expressed by weight, or if they all be expressed by measure, the rules given may be employed indiscriminately without changing the character of the formula in the least. But if in any one formula both weights and measures are used together, then the proportions between the quantities by weight and the quantities by measure will be changed, so that, in the metric formula, constructed according to the rules given, the measured quantities will be about five per cent. larger in proportion to the weighed quantities, the deviation from exactness in the measures being an excess of eight per cent., while in the weights it is an excess of only three per cent. Thus, if a prescription for one grain of a strychnia salt dissolved in four fluid ounces of water, be converted into metric terms by the application of these rules, the metric formula arrived at would give us a solution *five per cent. weaker*, which is an absolutely insignificant difference. Should, at the same time, the dose of the preparation be indicated in cubic centimetres according to the rules given, instead of in fluid drachms or teaspoonfuls, then, as the dose is increased 8 per cent., while the strength of the medicine is diminished 5 per cent., even that insignificant difference would be lessened.

In applying the foregoing rules for writing prescriptions, the metric quantities should be adjusted so as to be expressed in as simple decimal terms as may be practicable, without materially changing the dose or the character of the formula.

able of approximate equivalents of Apothecaries' Weights and Measures in metric terms, as obtained in accordance with the rules herein given.

$\frac{1}{64}$ grain is nearly equal to..	0.0010 Gm.	$\frac{1}{64}$ minim is nearly equal to..	0.0010 C. C.
$\frac{1}{48}$ .....do.....do.....	0.0013 "	$\frac{1}{48}$ .....do.....do.....	0.0013 "
$\frac{1}{40}$ .....do.....do.....	0.0016 "	$\frac{1}{40}$ .....do.....do.....	0.0016 "
$\frac{1}{32}$ .....do.....do.....	0.0020 "	$\frac{1}{32}$ .....do.....do.....	0.0020 "
$\frac{1}{24}$ .....do.....do.....	0.0025 "	$\frac{1}{24}$ .....do.....do.....	0.0025 "
$\frac{1}{20}$ .....do.....do.....	0.0033 "	$\frac{1}{20}$ .....do.....do.....	0.0033 "
$\frac{1}{16}$ .....do.....do.....	0.0040 "	$\frac{1}{16}$ .....do.....do.....	0.0040 "
$\frac{1}{12}$ .....do.....do.....	0.0050 "	$\frac{1}{12}$ .....do.....do.....	0.0050 "
$\frac{1}{10}$ .....do.....do.....	0.0066 "	$\frac{1}{10}$ .....do.....do.....	0.0066 "
$\frac{1}{8}$ .....do.....do.....	0.0080 "	$\frac{1}{8}$ .....do.....do.....	0.0080 "
$\frac{1}{6}$ .....do.....do.....	0.0110 "	$\frac{1}{6}$ .....do.....do.....	0.0110 "
$\frac{1}{5}$ .....do.....do.....	0.0133 "	$\frac{1}{5}$ .....do.....do.....	0.0133 "
$\frac{1}{4}$ .....do.....do.....	0.016 "	$\frac{1}{4}$ .....do.....do.....	0.016 "
$\frac{1}{3}$ .....do.....do.....	0.022 "	$\frac{1}{3}$ .....do.....do.....	0.022 "
$\frac{1}{2}$ .....do.....do.....	0.033 "	$\frac{1}{2}$ .....do.....do.....	0.033 "
$\frac{3}{4}$ .....do.....do.....	0.050 "	$\frac{3}{4}$ .....do.....do.....	0.050 "
1 .....do.....do.....	0.066 "	1 .....do.....do.....	0.066 "
$1\frac{1}{2}$ grains is nearly equal to..	0.100 "	$1\frac{1}{2}$ minims is nearly equal	
		to	0.100 "
2 .....do.....do.....	0.133 "	2 .....do.....do.....	0.133 "
$2\frac{1}{2}$ .....do.....do.....	0.166 "	$2\frac{1}{2}$ .....do.....do.....	0.166 "
3 .....do.....do.....	0.200 "	3 .....do.....do.....	0.200 "
4 .....do.....do.....	0.266 "	4 .....do.....do.....	0.266 "
5 .....do.....do.....	0.333 "	5 .....do.....do.....	0.333 "
6 .....do.....do.....	0.400 "	6 .....do.....do.....	0.400 "
7 .....do.....do.....	0.466 "	7 .....do.....do.....	0.466 "
8 .....do.....do.....	0.533 "	8 .....do.....do.....	0.533 "
9 .....do.....do.....	0.600 "	9 .....do.....do.....	0.600 "
10 .....do.....do.....	0.666 "	10 .....do.....do.....	0.666 "
11 .....do.....do.....	0.733 "	11 .....do.....do.....	0.733 "
12 .....do.....do.....	0.800 "	12 .....do.....do.....	0.800 "
13 .....do.....do.....	0.866 "	13 .....do.....do.....	0.866 "
14 .....do.....do.....	0.933 "	14 .....do.....do.....	0.933 "
15 .....do.....do.....	1.000 "	15 .....do.....do.....	1.000 "
16 .....do.....do.....	1.066 "	16 .....do.....do.....	1.066 "
18 .....do.....do.....	1.200 "	18 .....do.....do.....	1.200 "
20 .....do.....do.....	1.333 "	20 .....do.....do.....	1.333 "
22 .....do.....do.....	1.466 "	22 .....do.....do.....	1.466 "
24 .....do.....do.....	1.600 "	24 .....do.....do.....	1.600 "
26 .....do.....do.....	1.733 "	26 .....do.....do.....	1.733 "
28 .....do.....do.....	1.866 "	28 .....do.....do.....	1.866 "
30 .....do.....do.....	2.000 "	30 .....do.....do.....	2.000 "
32 .....do.....do.....	2.133 "	32 .....do.....do.....	2.133 "
33 .....do.....do.....	2.222 "	33 .....do.....do.....	2.222 "
34 .....do.....do.....	2.666 "	34 .....do.....do.....	2.266 "
36 .....do.....do.....	2.400 "	36 .....do.....do.....	2.400 "
38 .....do.....do.....	2.533 "	38 .....do.....do.....	5.533 "
39 .....do.....do.....	2.600 "	39 .....do.....do.....	2.600 "
40 .....do.....do.....	2.666 "	40 .....do.....do.....	2.666 "
42 .....do.....do.....	2.800 "	42 .....do.....do.....	2.800 "
44 .....do.....do.....	2.933 "	44 .....do.....do.....	2.933 "
45 .....do.....do.....	3.000 "	45 .....do.....do.....	3.000 "
46 .....do.....do.....	3.066 "	46 .....do.....do.....	3.066 "
48 .....do.....do.....	3.200 "	48 .....do.....do.....	3.200 "
50 .....do.....do.....	3.333 "	50 .....do.....do.....	3.333 "
56 .....do.....do.....	3.800 "	56 .....do.....do.....	3.800 "
1 drachm is nearly equal to..	4.00 Gm.	1 fluid drachm is nearly	
		equal to	4.00 C. C.
$1\frac{1}{4}$ drachms is nearly equal		$1\frac{1}{4}$ fluid drachms is nearly	
to	5.00 "	equal to	5.00 "
$1\frac{1}{2}$ .....do.....do.....	6.00 "	$1\frac{1}{2}$ .....do.....do.....	6.00 "
$1\frac{3}{4}$ .....do.....do.....	7.00 "	$1\frac{3}{4}$ .....do.....do.....	7.00 "
2 .....do.....do.....	8.00 "	2 .....do.....do.....	8.00 "
$2\frac{1}{2}$ .....do.....do.....	10.00 "	$2\frac{1}{2}$ .....do.....do.....	10.00 "

Table of approximate equivalents, &c.—Continued.

3 drachms is nearly equal to 12.00 Gm.	3 fluid drachms is nearly equal to 12.00 C. C.
4 .....do.....do..... 16.00 "	4 .....do.....do..... 16.00 "
5 .....do.....do..... 20.00 "	5 .....do.....do..... 20.00 "
6 .....do.....do..... 24.00 "	6 .....do.....do..... 24.00 "
7 .....do.....do..... 28.00 "	7 .....do.....do..... 28.00 "
1 ounce is nearly equal to. 32.00 "	1 fluid ounce is nearly equal to 32.00 "
1½ ounces is nearly equal to. 48.00 "	1½ fluid ounces is nearly equal to 48.00 "
2 .....do.....do..... 64.00 "	2 .....do.....do..... 64.00 "
3 .....do.....do..... 96.00 "	3 .....do.....do..... 96.00 "
4 .....do.....do..... 128.00 "	4 .....do.....do..... 128.00 "
5 .....do.....do..... 160.00 "	5 .....do.....do..... 160.00 "
6 .....do.....do..... 192.00 "	6 .....do.....do..... 192.00 "
7 .....do.....do..... 224.00 "	7 .....do.....do..... 224.00 "
8 .....do.....do..... 256.00 "	8 .....do.....do..... 256.00 "
9 .....do.....do..... 288.00 "	9 .....do.....do..... 288.00 "
10 .....do.....do..... 320.00 "	10 .....do.....do..... 320.00 "
11 .....do.....do..... 352.00 "	11 .....do.....do..... 352.00 "
12 .....do.....do..... 384.00 "	12 .....do.....do..... 384.00 "
13 .....do.....do..... 416.00 "	13 .....do.....do..... 416.00 "
14 .....do.....do..... 448.00 "	14 .....do.....do..... 448.00 "
15 .....do.....do..... 480.00 "	15 .....do.....do..... 480.00 "
16 .....do.....do..... 512.00 "	16 .....do.....do..... 512.00 "

The terms "gramme" and "cubic centimetre" might be abbreviated "Gm." and "C. C." To preclude the possibility, (in *careless* writing,) however, of mistaking the sign Gm. (gramme) for the sign "gr.," (grain,) the number should invariably precede the sign, using the common Arabic numerals. Thus, while ten grains is always written "gr. X," (Roman numerals being used,) ten grammes would be written "10 Gm." When the term "centigramme" is used it should be spelled out in full. Ten centigrammes might, however, more conveniently be written "0.10 Gm." than "10 centigrammes." In writing, the abbreviated metric denominations should always be underscored; but the preceding number should not, as above.

Two examples will suffice to illustrate the foregoing rules and suggestions. The following prescription—

℞: Extr. Coloc. Comp., ʒiiss.
Extr. Colch. Acet., gr. xii.
Extr. Digitalis, gr. vj.
Make into 24 pills—

would, in metric terms, be written:

℞: Extr. Coloc. Comp., 6 Gm. (See Rule B.)
Extr. Colch. Acet., 0.8 Gm. (See Rule A.)
Extr. Digitalis, 0.4 Gm. (See Rule A.)
Make into 24 pills.

Or, in a more finished decimal manner:

R: Extr. Coloc. Comp., 7.50 Gm.

Extr. Colch. Acet., 1 Gm.

Extr. Digitalis, 0.5 Gm.

Make into 30 pills.

And the following prescription—

R: Potassii Bromidi, ʒi .

Elix. Aurantii, fl. ʒviiij .

Mix—

would, in metric terms, be written:

R: Potassii Bromidi, 32 Gm. (See Rule C.)

Elix. Aurantii, 256 C. C. (See Rule F.)

Mix.

Or, in a more finished decimal manner:

R: Potassii Bromidi, 30 Gm.

Elix. Aurantii, 250 C. C.

Mix.

RULES FOR CONVERTING TERMS OF METRIC WEIGHTS AND MEASURES INTO THEIR RESPECTIVE EQUIVALENTS IN TERMS OF THE APOTHECARIES' SYSTEM OF WEIGHTS AND MEASURES.

1. TO CONVERT METRIC WEIGHT INTO APOTHECARIES' WEIGHT.

RULE G.—TO CONVERT ANY NUMBER OF GRAMMES INTO THE CORRESPONDING NUMBER OF TROY GRAINS: *Add 50 per cent., and then multiply the sum by 10.* The product is in each case the number of troy grains representing (nearly) the same quantity. Or,

RULE H.—TO CONVERT ANY NUMBER OF GRAMMES INTO THE CORRESPONDING NUMBER OF APOTHECARIES' DRACHMS: *Divide the number by 4.* The quotient is in each case the number of drachms representing (nearly) the same quantity. Or,

RULE I.—TO CONVERT ANY NUMBER OF GRAMMES INTO THE CORRESPONDING NUMBER OF TROY OUNCES: *Divide by 32.* The quotient is in each case the number of troy ounces representing (nearly) the same quantity.

As already stated under Rules A, B, and C, one gramme is equal to 15.43234874 troy grains, the fraction being ignored in the construction of these Rules. This applies equally in Rules G, H, and I. In Rule G, therefore, a multiplication by 15 may, if preferable, be substituted for the addition of 50 per cent. followed by a multiplication of the sum by 10, with the same result. The answers arrived at by Rules G,

H, and I, however, will be *too small* in about the same proportion as the answers arrived at by Rules A, B, and C, were too large—less than three per cent. To illustrate: By Rule G, 15,000 troy grains would be (nearly) equivalent to 1,000 grammes; but 1,000 grammes is equal to exactly 15,432.34874 troy grains. The deviation from exactness, therefore, in the answer arrived at by Rule G, (as also in the answers arrived at by Rules H and I,) is equivalent to a deficiency of 432.35 troy grains for every 1,000 grammes, or about 28 grains for every 1,000 grains, or less than 3 per cent.

To insure greater accuracy, if in any case deemed necessary, 3 per cent. may be added to the answer arrived at by either of the Rules G, H, and I. The deviation from exactness will then be reduced to one-eighth of one per cent., the sum being in excess of the exact equivalent sought by only 18 troy grains, or 1.166 grammes for every 1,000 grammes, or only about three-fifths grain for every troy ounce.

TO CONVERT DECIGRAMMES INTO TROY GRAINS it is only necessary to *add 50 per cent.*; and

TO CONVERT CENTIGRAMMES INTO TROY GRAINS *add 50 per cent., and then divide by 10*—the deviation from exactness in the answers arrived at in both cases being the same as in Rules G, H, and I, given above.

2. TO CONVERT METRIC CUBIC MEASURE INTO APOTHECARIES' MEASURE.

RULE K.—TO CONVERT ANY NUMBER OF CUBIC CENTIMETRES INTO THE CORRESPONDING NUMBER OF MINIMS: *Add 50 per cent. and then multiply the sum by 10.* The product is in each case the number of minims representing (nearly) the same quantity. Or,

RULE L.—TO CONVERT ANY NUMBER OF CUBIC CENTIMETRES INTO THE CORRESPONDING NUMBER OF FLUID DRACHMS: *Divide the number by 4.* The quotient is in each case the number of fluid drachms representing (nearly) the same quantity. Or,

RULE M.—TO CONVERT ANY NUMBER OF CUBIC CENTIMETRES INTO THE CORRESPONDING NUMBER OF FLUID OUNCES: *Divide by 32.* The quotient is in each case the number of fluid ounces representing (nearly) the same quantity.

The deviation from exactness in the answers arrived at by Rules K, L, and M, is of course about the reverse of that in the answers arrived at by Rules D, E, and F. To illustrate: By Rule K, 15,000 minims would be (nearly) equivalent to 1,000 cubic centimetres; but 1,000 cubic centimetres is equal to exactly 16,231.1678 + minims. The deviation from exactness, therefore, in the answer arrived at by Rule K (as also in the answers arrived at by Rules L and M) is equivalent to

a deficiency of 1,231.17 minims for every 1,000 cubic centimetres, or about 76 minims for every 1,000 minims, or less than 8 per cent.

To insure greater accuracy, if in any case deemed necessary, 8 per cent. may be added to the answer arrived at by either of the Rules K, L, and M. The deviation from exactness will then be reduced to less than one-twelfth of one per cent., the sum being in excess of the exact equivalent sought by only 31 minims, or 0.8 cubic centimetres for every 1,000 cubic centimetres, or only about one-third minim for every fluid ounce.

TO CONVERT CENTILITRES INTO MINIMS, it is only necessary to *add 50 per cent.*; and

TO CONVERT MILLILITRES INTO MINIMS, *add 50 per cent. and then divide by 10*—the deviation from exactness in the answers arrived at in both cases being the same as in Rules K, L, and M.

RULES (FOR CONVERTING UNITED STATES WEIGHTS AND MEASURES INTO METRIC) APPLICABLE IN THE PREPARATION OF REQUISITIONS FOR AND INVOICES OF MEDICAL SUPPLIES.

RULE N.—TO CONVERT AVOIRDUPOIS POUNDS INTO GRAMMES, (a,) OR PINTS INTO CUBIC CENTIMETRES, (b): *Multiply by 500 and deduct 10 per cent.*

NOTE.—(a.) The answer *for weights* arrived at by this rule will be too small by 55,433 grains for every 1,000 avoirdupois pounds, or about eight-tenths of 1 per cent. If 1 per cent. be added to that answer, the sum will be too great by only 14,012 grains for every 1,000 avoirdupois pounds, or 14 grains for every pound. *Ex.:* To find the number of grammes equivalent to 1,000 avoirdupois pounds, multiply by 500 and deduct 10 per cent.; the answer will be 450,000, which is 3,592 less than the exact number of grammes equivalent to 1,000 avoirdupois pounds. Add to the answer, (450,000,) 1 per cent., (4,500,) and the sum will be 454,500, which is only 908 more than the exact number of grammes equivalent to 1,000 avoirdupois pounds, (453,592.)

(b.) The answer *for measures* arrived at by this rule will be too small by nearly 49 pints for every 1,000 pints, or nearly 5 per cent. If 5 per cent. be added to that answer, the sum will be too small by only $22\frac{1}{2}$ fluid ounces for every 1,000 pints, or 11 minims for every pint. *Ex.:* To find the number of cubic centimetres equivalent to 1,000 pints, multiply by 500 and deduct 10 per cent.; the answer will be 450,000, which is less by 23,163.74 than the exact number of cubic centimetres equivalent to 1,000 pints. Add to the answer (450,000) 5 per cent., (22,500,) and the sum will be 472,500, which is only 663.74 less than the exact number of cubic centimetres equivalent to 1,000 pints, (473,163.74.)

RULE O.—TO CONVERT GRAMMES INTO AVOIRDUPOIS POUNDS, (a,) OR CUBIC CENTIMETRES INTO PINTS, (b): *Add 10 per cent. and divide by 500.*

NOTE.—(a.) The answer *for weights* arrived at by this rule will be too small by 32.35 grains in every 1,000 grammes, or about one-fourth per cent. If one-fourth per cent. be added to that answer the result will be too great by only 6.3 grains for every 1,000 grammes, or about one one-hundred-and-fiftieth of a grain for every gramme. *Ex.:* To find the number of avoirdupois pounds equivalent to 1,000 grammes, add 10 per cent. and then divide the sum by 500; the answer will be 2.2, which is 0.0046 less than the exact number of avoirdupois pounds equivalent to 1,000 grammes. Add to the answer (2.2) one-fourth per cent. (0.0055) and the sum will be 2.2055, which is only 0.0009 more than the exact number of avoirdupois pounds equivalent to 1,000 grammes, (2.20462 +.)

(b.) The answer *for measures* arrived at by this rule will be too great by 0.09 pints for every 1,000 cubic centimetres, or about 4 per cent. If 5 per cent. be deducted

from that answer, the sum will be too small by one-third fluid ounce for every 1,000 cubic centimetres, or one-sixth of a minim for every cubic centimetre. *Ex.*: To find the number of pints equivalent to 1,000 cubic centimetres, add 10 per cent. and divide the sum by 500; the answer will be 2.20, which is more by 0.09 than the exact number of pints equivalent to 1,000 cubic centimetres. Deduct from the answer (2.20) 5 per cent. (0.11) and the remainder will be 2.09, which is only 0.02 less than the exact number of pints equivalent to 1,000 cubic centimetres, (2.11 +.)

RULE P.—TO CONVERT AVOIRDUPOIS POUNDS INTO HALF-KILOGRAMMES, (a,) OR PINTS INTO HALF-LITRES, (b): *Deduct 10 per cent.*^a

RULE Q.—TO CONVERT HALF-KILOGRAMMES INTO AVOIRDUPOIS POUNDS, (a,) OR HALF-LITRES INTO PINTS, (b): *Add 10 per cent.*^b

RULE R.—TO CONVERT AVOIRDUPOIS OUNCES INTO GRAMMES: *Multiply by 30, and then deduct 5 per cent.*

NOTE.—The answer arrived at by this rule will be too great by about 5.30 avoirdupois ounces for every 1,000 avoirdupois ounces, (about one-half of one per cent.,) or 2.4 grains for every ounce. *Ex.*: To find the number of grammes equivalent to 1,000 avoirdupois ounces, multiply by 30, and from the product deduct 5 per cent.; the answer will be 28,500, which is 150.46 more than the exact number of grammes equivalent to 1,000 avoirdupois ounces, (28,349.54.)

RULE S.—TO CONVERT GRAMMES INTO AVOIRDUPOIS OUNCES: *Divide by 30, and add 5 per cent.*

NOTE.—The answer arrived at by this rule will be too small by 0.273 ounces for every 1,000 grammes, or less than 0.3 grain for each gramme.

RULE T.—TO CONVERT YARDS INTO METRES: *Deduct 10 per cent.*

NOTE.—The answer arrived at by this rule will be too small by 15.75 yards for every 1,000 yards, or a little over $1\frac{1}{2}$ per cent. If $1\frac{1}{2}$ per cent. be added to that answer, the sum will be too small by only about $35\frac{1}{2}$ inches for every 1,000 yards, or one-thirtieth inch for every yard. *Ex.*: To find the number of metres equivalent to 1,000 yards, deduct 100; the remainder, 900, lacks 14.39 of being the exact number of metres equivalent to 1,000 yards. Add to the answer (900) $1\frac{1}{2}$ per cent. (13.50) and the sum will be 913.50, which is only 0.9 less than the exact number of metres equivalent to 1,000 yards, (914.39 +.)

RULE U.—TO CONVERT METRES INTO YARDS: *Add 10 per cent.*

NOTE.—The answer arrived at by this rule will be too great by 19.13 feet for every 1,000 metres, or a little over one-half per cent. If one-half per cent. be deducted from that answer, the remainder will be too great by only about $32\frac{1}{2}$ inches for every 1,000 metres, or about one-thirtieth inch for every metre. *Ex.*: To find the number of yards equivalent to 1,000 metres, add 10 per cent.; the answer will be 1,100, or 6.38 more than the exact number of yards equivalent to 1,000 metres. Deduct from the answer (1,100) one-half per cent. (5.50) and the remainder will be 1,094.50, which is only about 0.88 more than the exact number of yards equivalent to 1,000 metres, (1,093.62 +.)

RULE W.—TO CONVERT FEET INTO METRES: *Multiply by 3 and divide by 10.*

NOTE.—The answer arrived at by this rule will be too small by 15.75 feet for every 1,000 feet, or a little over $1\frac{1}{2}$ per cent. If $1\frac{1}{2}$ per cent. be added to that answer, the sum will be too small by only about one foot for every 1,000 feet, or about one-eightieth inch for every foot. *Ex.*: To find the number of metres equivalent to 1,000 feet, multiply by 3 and divide the product by 10; the answer will be 300, or 4.8 less than the exact number of metres equivalent to 1,000 feet. Add to the answer (300) $1\frac{1}{2}$ per cent. (4.50) and the sum will be 304.50, which is only about 0.3 less than the exact number of metres equivalent to 1,000 feet, (304.80 —.)

^a The answers, for weights and measures, respectively, arrived at by this rule, are as nearly the exact equivalents as are the answers arrived at by Rule N, (a) and (b,) and require similar corrections to insure greater accuracy, if deemed necessary.

^b The answers, for weights and measures, respectively, arrived at by this rule, are as nearly the exact equivalents as are the answers arrived at by Rule O, (a) and (b,) and require similar corrections to insure greater accuracy, if deemed necessary.

RULE X.—TO CONVERT METRES INTO FEET: *Add 10 per cent. and multiply by 3.*

NOTE.—The answer arrived at by this rule will be too great by 19.13 feet for every 1,000 metres, or about one-half per cent. If one-half per cent. be deducted from that answer, the remainder will be too great by only about $2\frac{1}{2}$ feet for every 1,000 metres, or one-thirtieth inch for every metre. *Ex.:* To find the number of feet equivalent to 1,000 metres, add 10 per cent. and multiply by 3; the answer will be 3,300.00, or 19.13 more than the exact number of feet equivalent to 1,000 metres. Deduct from the answer (3,300.00) one-half per cent., (16.50,) and the remainder will be 3,283.50, which is only about $2\frac{1}{2}$ more than the exact number of feet equivalent to 1,000 metres, (3,280.87 —.)

RULE Y.—TO CONVERT INCHES INTO METRES: *Divide by 40.*

NOTE.—The answer arrived at by this rule will be too small by 15.75 inches for every 1,000 inches, or about $1\frac{1}{2}$ per cent. If $1\frac{1}{2}$ per cent. be added to that answer, the sum will be too small by about 1 inch for every 1,000 inches, or about $\frac{1}{1000}$ inch for every inch. *Ex.:* To find the number of metres equivalent to 1,000 inches, divide by 40; the answer will be 25, which is 0.4 less than the exact number of metres equivalent to 1,000 inches. Add to the answer (25) $1\frac{1}{2}$ per cent., (.375,) and the sum will be 25.375, which is only about 0.025 less than the exact number of metres equivalent to 1,000 inches, (25.40 —.)

RULE Z.—TO CONVERT METRES INTO INCHES: *Add 10 per cent. and multiply by 36.*

NOTE.—The answer arrived at by this rule will be too great by 19.13 feet for every 1,000 metres, or about one-half per cent. If one-half per cent. be deducted from that answer, the remainder will be too great by only about $2\frac{1}{2}$ feet for every 1,000 metres, or one-thirtieth inch for every metre. *Ex.:* To find the number of inches equivalent to 1,000 metres, add 10 per cent. and multiply by 36; the answer will be 39,600, which is 229.57 more than the exact number of inches equivalent to 1,000 metres. Deduct from the answer (39,600) one-half per cent., (198,) and the remainder will be 39,402, which is only 31.57 more than the exact number of inches equivalent to 1,000 metres, (39,370.43.)

In preparing requisitions for medical supplies, 500 grammes might be estimated for instead of 1 avoirdupois pound, the latter being about $1\frac{1}{2}$ ounces less than the former quantity; 30 grammes might be estimated for instead of 1 ounce, (avoirdupois,) the latter being about 20 grains more than the former quantity; and 5 grammes might be estimated for instead of one-eighth ounce, (avoirdupois,) the latter being 20 grains less; 500 cubic centimetres might be estimated for instead of 16 fluid ounces, the latter being about 1 fluid ounce less; and 30 cubic centimetres might be estimated for instead of 1 fluid ounce, the latter being about 30 minims less than the former quantity. One metre might be estimated for instead of 1 yard, the latter being about $3\frac{1}{3}$ inches less than the former.

I append tables showing the relation of the metric units of measurement of length, volume, and weight—the only units with which we have to do in purveying, and for medical and pharmacal purposes generally—to our present units, and *vice versa*; together with simple rules for the ready conversion of terms of the apothecaries' weights and measures into their respective equivalents in terms of the Metric System. These tables are based upon the determination by Captain

CLARKE, according to which the metre is equal to 39.370432 inches, or upon the determination by Professor MILLER, according to which the gramme is equal to 15.43234874 troy grains. Finally, follows a posological table, in which the doses are stated in terms of both the Apothecaries' and the Metric Systems.

A.—RELATION OF METRIC TO ENGLISH MEASURES OF LENGTH.

(1 metre = 39.370432 inches.—*Clarke.*)

Metres.	Equivalents in—			Metres.	Equivalents in—		
	Inches.	Feet.	Yards.		Inches.	Feet.	Yards.
0.001	0.039	-----	-----	11	433.075	36.099	12.030
0.010	0.394	-----	-----	12	472.445	39.370	13.123
0.100	3.937	0.328	0.109	13	511.816	42.651	14.217
1.000	39.370	3.281	1.094	14	551.186	45.932	15.311
2	78.741	6.562	2.187	15	590.556	49.213	16.404
3	118.111	9.843	3.281	16	629.927	52.494	17.498
4	157.482	13.123	4.374	17	669.297	55.775	18.592
5	196.852	16.404	5.468	18	708.668	59.056	19.685
6	236.223	19.685	6.562	19	748.038	62.337	20.779
7	275.593	22.966	7.655	20	787.409	65.617	21.872
8	314.963	26.247	8.749	100	3937.043	328.087	109.362
9	354.334	29.528	9.843	1000	3,9370.432	3280.869	1093.623
10	393.704	32.809	10.936				

B.—RELATION OF ENGLISH TO METRIC MEASURES OF LENGTH.

(1 yard = 0.91439178 metres.)

1 inch is equal to	0.025 metres.	17 feet is equal to	5.182 metres.
2 inches is equal to	0.051 "	18 ....do.....do.....	5.486 "
3 ....do.....do.....	0.076 "	19 ....do.....do.....	5.791 "
4 ....do.....do.....	0.102 "	20 ....do.....do.....	6.096 "
5 ....do.....do.....	0.127 "	21 ....do.....do.....	6.401 "
6 ....do.....do.....	0.152 "	22 ....do.....do.....	6.706 "
7 ....do.....do.....	0.178 "	23 ....do.....do.....	7.010 "
8 ....do.....do.....	0.203 "	24 ....do.....do.....	7.315 "
9 ....do.....do.....	0.229 "	25 ....do.....do.....	7.620 "
10 ....do.....do.....	0.254 "	26 ....do.....do.....	7.925 "
11 ....do.....do.....	0.279 "	27 ....do.....do.....	8.230 "
1 foot is equal to	0.305 "	28 ....do.....do.....	8.534 "
2 feet is equal to	0.610 "	29 ....do.....do.....	8.839 "
3 ....do.....do.....	0.914 "	30 ....do.....do.....	9.144 "
4 ....do.....do.....	1.219 "	31 ....do.....do.....	9.449 "
5 ....do.....do.....	1.524 "	32 ....do.....do.....	9.754 "
6 ....do.....do.....	1.829 "	33 ....do.....do.....	10.058 "
7 ....do.....do.....	2.134 "	34 ....do.....do.....	10.363 "
8 ....do.....do.....	2.438 "	35 ....do.....do.....	10.668 "
9 ....do.....do.....	2.743 "	36 ....do.....do.....	10.973 "
10 ....do.....do.....	3.048 "	37 ....do.....do.....	11.277 "
11 ....do.....do.....	3.353 "	38 ....do.....do.....	11.582 "
12 ....do.....do.....	3.658 "	39 ....do.....do.....	11.887 "
13 ....do.....do.....	3.962 "	40 ....do.....do.....	12.192 "
14 ....do.....do.....	4.267 "	50 ....do.....do.....	15.24 "
15 ....do.....do.....	4.572 "	100 ....do.....do.....	30.480 "
16 ....do.....do.....	4.877 "		

(1 square metre is equal to 1550.030915870 square inches.)

C.—RELATION OF METRIC TO ENGLISH CUBIC MEASURES.

0.05 cubic centimetre is equal to	0.81 + minim.	2 cubic centimetres is equal to	32.46 + minims.
0.06....do.....do....	0.97 + “	3....do.....do.....	48.69 + “
0.07....do.....do....	1.14 — “	4....do.....do.....	1.08 + fl. drs.
0.08....do.....do....	1.30 — “	5....do.....do.....	1.35 + “
0.09....do.....do....	1.46 + “	6....do.....do.....	1.62 + “
0.10....do.....do....	1.62 + “	7....do.....do.....	1.89 + “
0.11....do.....do....	1.79 — “	8....do.....do.....	2.16 + “
0.12....do.....do....	1.95 — “	9....do.....do.....	2.43 + “
0.13....do.....do....	2.11 + “	10....do.....do.....	2.71 — “
0.14....do.....do....	2.27 + “	20....do.....do.....	5.41 + “
0.15....do.....do....	2.43 + “	30....do.....do.....	1.01 + fl. ozs.
0.16....do.....do....	2.60 — “	40....do.....do.....	1.35 + “
0.17....do.....do....	2.76 — “	50....do.....do.....	1.69 + “
0.18....do.....do....	2.92 + “	60....do.....do.....	2.03 — “
0.19....do.....do....	3.08 + “	70....do.....do.....	2.37 — “
0.20....do.....do....	3.25 — “	80....do.....do.....	2.71 — “
0.25....do.....do....	4.06 — “	90....do.....do.....	3.04 + “
0.30....do.....do....	4.87 + “	100....do.....do.....	3.38 + “
0.35....do.....do....	5.68 — “	150....do.....do.....	5.07 + “
0.40....do.....do....	6.49 + “	200....do.....do.....	6.76 + “
0.45....do.....do....	7.30 + “	250....do.....do.....	8.45 + “
0.50....do.....do....	8.12 — “	300....do.....do.....	10.14 + “
0.55....do.....do....	8.93 — “	350....do.....do.....	11.84 — “
0.60....do.....do....	9.74 — “	400....do.....do.....	13.53 — “
0.65....do.....do....	10.55 + “	450....do.....do.....	15.22 — “
0.70....do.....do....	11.36 + “	500....do.....do.....	1.06 — pints.
0.75....do.....do....	12.17 + “	600....do.....do.....	1.27 — “
0.80....do.....do....	12.98 + “	700....do.....do.....	1.45 — “
0.85....do.....do....	13.80 — “	800....do.....do.....	1.69 + “
0.90....do.....do....	16.61 — “	900....do.....do.....	1.90 + “
0.95....do.....do....	15.42 — “	1,000....do.....do.....	2.11 — “
1....do.....do....	16.23 + “		

D.—RELATION OF ENGLISH TO METRIC CUBIC MEASURES.

1 minim is equal to....	0.06 + C. C.	30 minims is equal to...	1.85 — C. C.
2 minims is equal to...	0.12 + “	35....do.....do.....	2.16 — “
3....do.....do.....	0.18 + “	40....do.....do.....	2.46 + “
4....do.....do.....	0.25 — “	45....do.....do.....	2.77 + “
5....do.....do.....	0.31 — “	50....do.....do.....	3.08 + “
6....do.....do.....	0.37 — “	55....do.....do.....	3.39 — “
7....do.....do.....	0.43 + “	60....do.....do.....	3.70 — “
8....do.....do.....	0.49 + “	70....do.....do.....	4.31 + “
9....do.....do.....	0.55 + “	80....do.....do.....	4.93 — “
10....do.....do.....	0.62 — “	90....do.....do.....	5.54 + “
11....do.....do.....	0.68 — “	100....do.....do.....	6.16 + “
12....do.....do.....	0.74 — “	110....do.....do.....	6.78 — “
13....do.....do.....	0.80 + “	120....do.....do.....	7.39 + “
14....do.....do.....	0.86 + “	3 fluid drachms is equal to.....do.....do.....	11.09 — “
15....do.....do.....	0.92 + “	4....do.....do.....	14.79 — “
16....do.....do.....	0.99 — “	5....do.....do.....	18.48 + “
17....do.....do.....	1.05 — “	6....do.....do.....	22.18 — “
18....do.....do.....	1.11 — “	7....do.....do.....	25.88 — “
19....do.....do.....	1.17 + “	8....do.....do.....	29.57 + “
20....do.....do.....	1.23 + “	9....do.....do.....	33.27 — “
21....do.....do.....	1.29 + “	10....do.....do.....	36.97 — “
22....do.....do.....	1.36 — “	11....do.....do.....	40.66 + “
23....do.....do.....	1.42 — “	12....do.....do.....	44.36 — “
24....do.....do.....	1.48 — “	13....do.....do.....	48.06 — “
25....do.....do.....	1.54 + “	14....do.....do.....	51.75 + “
26....do.....do.....	1.60 + “	15....do.....do.....	55.45 — “
27....do.....do.....	1.66 + “	16....do.....do.....	59.10 — “
28....do.....do.....	1.73 — “	3 fl. ounces is equal to..	88.67 — “
29....do.....do.....	1.79 — “		

D.—*Relation of English to Metric Cubic Measures*—Continued.

4 fl. ounces is equal to . 118.24 + C. C.	20 fl. ounces is equal to . 591.50 + C. C.
5 .....do.....do..... 147.81 + “	21 .....do.....do..... 621.08 — “
6 .....do.....do..... 177.39 — “	22 .....do.....do..... 650.65 + “
7 .....do.....do..... 206.96 — “	23 .....do.....do..... 680.22 + “
8 .....do.....do..... 236.53 + “	24 .....do.....do..... 709.80 + “
9 .....do.....do..... 266.10 + “	25 .....do.....do..... 739.37 — “
10 .....do.....do..... 295.68 — “	26 .....do.....do..... 768.94 + “
11 .....do.....do..... 325.25 + “	27 .....do.....do..... 798.51 + “
12 .....do.....do..... 354.82 + “	28 .....do.....do..... 828.09 — “
13 .....do.....do..... 384.40 — “	29 .....do.....do..... 857.66 — “
14 .....do.....do..... 413.97 — “	30 .....do.....do..... 887.23 — “
15 .....do.....do..... 443.54 + “	31 .....do.....do..... 916.80 + “
16 .....do.....do..... 473.11 + “	32 .....do.....do..... 946.38 — “
17 .....do.....do..... 502.69 — “	64 .....do.....do..... 1892.75 + “
18 .....do.....do..... 532.26 — “	128 .....do.....do..... 3785.51 — “
19 .....do.....do..... 561.93 + “	

E.—RELATION OF METRIC TO APOTHECARIES' WEIGHTS.

(1 gramme = 15.2343874 troy grains.)

0.0010 gramme is equal to . 0.015 grain.	0.170 gramme is equal to . 2.623 grs.
0.0013 .....do.....do..... 0.019 “	0.180 .....do.....do..... 2.778 “
0.0015 .....do.....do..... 0.023 “	0.190 .....do.....do..... 2.932 “
0.0020 .....do.....do..... 0.031 “	0.200 .....do.....do..... 3.086 “
0.0025 .....do.....do..... 0.039 “	0.210 .....do.....do..... 3.241 “
0.0030 .....do.....do..... 0.046 “	0.220 .....do.....do..... 3.395 “
0.0035 .....do.....do..... 0.054 “	0.230 .....do.....do..... 3.549 “
0.0040 .....do.....do..... 0.062 “	0.240 .....do.....do..... 3.704 “
0.0045 .....do.....do..... 0.069 “	0.250 .....do.....do..... 3.858 “
0.0050 .....do.....do..... 0.077 “	0.260 .....do.....do..... 4.012 “
0.0055 .....do.....do..... 0.085 “	0.270 .....do.....do..... 4.167 “
0.0060 .....do.....do..... 0.093 “	0.280 .....do.....do..... 4.321 “
0.0065 .....do.....do..... 0.100 “	0.290 .....do.....do..... 4.475 “
0.0070 .....do.....do..... 0.108 “	0.300 .....do.....do..... 4.630 “
0.0075 .....do.....do..... 0.116 “	0.310 .....do.....do..... 4.784 “
0.0080 .....do.....do..... 0.123 “	0.320 .....do.....do..... 4.938 “
0.0085 .....do.....do..... 0.131 “	0.330 .....do.....do..... 5.093 “
0.0090 .....do.....do..... 0.139 “	0.340 .....do.....do..... 5.247 “
0.0095 .....do.....do..... 0.147 “	0.350 .....do.....do..... 5.401 “
0.0100 .....do.....do..... 0.154 “	0.360 .....do.....do..... 5.556 “
0.0125 .....do.....do..... 0.193 “	0.370 .....do.....do..... 5.710 “
0.0150 .....do.....do..... 0.231 “	0.380 .....do.....do..... 5.864 “
0.0200 .....do.....do..... 0.309 “	0.390 .....do.....do..... 6.019 “
0.0250 .....do.....do..... 0.386 “	0.400 .....do.....do..... 6.173 “
0.0300 .....do.....do..... 0.463 “	0.500 .....do.....do..... 7.716 “
0.0350 .....do.....do..... 0.540 “	0.600 .....do.....do..... 9.259 “
0.0400 .....do.....do..... 0.617 “	0.700 .....do.....do..... 10.803 “
0.0450 .....do.....do..... 0.694 “	0.800 .....do.....do..... 12.346 “
0.050 .....do.....do..... 0.772 “	0.900 .....do.....do..... 13.889 “
0.055 .....do.....do..... 0.849 “	1 .....do.....do..... 15.432 “
0.060 .....do.....do..... 0.926 “	2 grammes is equal to 30.865 “
0.065 .....do.....do..... 1.003 “	3 .....do.....do..... 46.297 “
0.070 .....do.....do..... 1.080 “	4 .....do.....do..... 61.729 “
0.075 .....do.....do..... 1.157 “	5 .....do.....do..... 77.162 “
0.080 .....do.....do..... 1.235 “	6 .....do.....do..... 92.594 “
0.085 .....do.....do..... 1.312 “	7 .....do.....do..... 108.026 “
0.090 .....do.....do..... 1.389 “	8 .....do.....do..... 123.459 “
0.095 .....do.....do..... 1.466 “	9 .....do.....do..... 138.891 “
0.100 .....do.....do..... 1.543 “	10 .....do.....do..... 154.323 “
0.110 .....do.....do..... 1.698 “	11 .....do.....do..... 169.756 “
0.120 .....do.....do..... 1.852 “	12 .....do.....do..... 185.188 “
0.130 .....do.....do..... 0.006 “	13 .....do.....do..... 200.620 “
0.140 .....do.....do..... 2.161 “	14 .....do.....do..... 216.053 “
0.150 .....do.....do..... 2.315 “	15 .....do.....do..... 231.485 “
0.160 .....do.....do..... 2.469 “	16 .....do.....do..... 246.918 “

E.—*Relation of Metric to Apothecaries' Weights*—Continued.

17 grammes is equal to	262.350	grs.	125 grammes is equal to	1,929.044	grs.
18 .....do.....do..	277.782	"	150 .....do.....do..	2,314.852	"
19 .....do.....do..	293.215	"	200 .....do.....do..	3,086.470	"
20 .....do.....do..	308.647	"	250 .....do.....do..	3,858.087	"
21 .....do.....do..	324.079	"	300 .....do.....do..	4,629.705	"
22 .....do.....do..	339.512	"	333 .....do.....do..	5,144.118	"
23 .....do.....do..	354.944	"	350 .....do.....do..	5,401.322	"
24 .....do.....do..	370.376	"	400 .....do.....do..	6,172.940	"
25 .....do.....do..	385.809	"	50 .....do.....do..	6,944.557	"
26 .....do.....do..	401.241	"	500 .....do.....do..	7,716.174	"
27 .....do.....do..	416.673	"	600 .....do.....do..	9,259.409	"
28 .....do.....do..	432.106	"	700 .....do.....do..	10,802.644	"
29 .....do.....do..	447.538	"	750 .....do.....do..	11,574.262	"
30 .....do.....do..	462.970	"	800 .....do.....do..	12,345.879	"
31 .....do.....do..	478.403	"	900 .....do.....do..	13,889.114	"
32 .....do.....do..	493.835	"	1,000 .....do.....do..	15,432.35	"
33 .....do.....do..	509.268	"	1,500 .....do.....do..	23,148.52	"
34 .....do.....do..	524.700	"	2,000 .....do.....do..	30,864.70	"
35 .....do.....do..	540.132	"	2,500 .....do.....do..	38,580.87	"
36 .....do.....do..	555.565	"	3,000 .....do.....do..	46,297.05	"
37 .....do.....do..	570.997	"	3,500 .....do.....do..	54,013.22	"
38 .....do.....do..	586.429	"	4,000 .....do.....do..	61,729.40	"
39 .....do.....do..	601.862	"	4,500 .....do.....do..	69,445.57	"
40 .....do.....do..	617.294	"	5,000 .....do.....do..	77,161.74	"
50 .....do.....do..	771.617	"	10,000 .....do.....do..	154,432.35	"
60 .....do.....do..	925.941	"	20,000 .....do.....do..	308,646.97	"
70 .....do.....do..	1,080.264	"	25,000 .....do.....do..	385,808.72	"
80 .....do.....do..	1,234.588	"	50,000 .....do.....do..	771,617.44	"
90 .....do.....do..	1,388.911	"	100,000 .....do.....do..	1543,234.87	"
100 .....do.....do..	1,543.235	"			

F.—RELATION OF APOTHECARIES' TO METRIC WEIGHTS.

1 troy grain = 0.06479895 + gramme.

$\frac{1}{64}$ troy grain is equal to	0.00101 + Gm.	5 troy grains is equal to	0.32399 + Gm.
$\frac{1}{60}$ .....do.....do.....	0.00108 — "	6 .....do.....do.....	0.38879 — "
$\frac{1}{50}$ .....do.....do.....	0.00130 — "	7 .....do.....do.....	0.45359 — "
$\frac{1}{48}$ .....do.....do.....	0.00135 — "	8 .....do.....do.....	0.51839 — "
$\frac{1}{40}$ .....do.....do.....	0.00162 — "	9 .....do.....do.....	0.58319 + "
$\frac{1}{36}$ .....do.....do.....	0.00180 — "	10 .....do.....do.....	0.64799 — "
$\frac{1}{32}$ .....do.....do.....	0.00202 + "	11 .....do.....do.....	0.71297 — "
$\frac{1}{30}$ .....do.....do.....	0.00216 — "	12 .....do.....do.....	0.77759 — "
$\frac{1}{25}$ .....do.....do.....	0.00259 + "	13 .....do.....do.....	0.84239 — "
$\frac{1}{24}$ .....do.....do.....	0.00270 — "	14 .....do.....do.....	0.90718 + "
$\frac{1}{20}$ .....do.....do.....	0.00324 — "	15 .....do.....do.....	0.97198 + "
$\frac{1}{18}$ .....do.....do.....	0.00360 — "	16 .....do.....do.....	1.037 — "
$\frac{1}{16}$ .....do.....do.....	0.00405 — "	17 .....do.....do.....	1.102 — "
$\frac{1}{15}$ .....do.....do.....	0.00432 — "	18 .....do.....do.....	1.166 + "
$\frac{1}{12}$ .....do.....do.....	0.00540 — "	19 .....do.....do.....	1.231 + "
$\frac{1}{10}$ .....do.....do.....	0.00648 — "	20 .....do.....do.....	1.296 — "
$\frac{1}{8}$ .....do.....do.....	0.00810 — "	21 .....do.....do.....	1.361 — "
$\frac{1}{6}$ .....do.....do.....	0.01080 — "	22 .....do.....do.....	1.426 — "
$\frac{1}{5}$ .....do.....do.....	0.01296 — "	23 .....do.....do.....	1.458 — "
$\frac{1}{4}$ .....do.....do.....	0.01620 — "	24 .....do.....do.....	1.555 + "
$\frac{1}{3}$ .....do.....do.....	0.02160 — "	25 .....do.....do.....	1.620 + "
$\frac{1}{2}$ .....do.....do.....	0.03240 — "	26 .....do.....do.....	1.685 — "
$\frac{3}{4}$ .....do.....do.....	0.04860 — "	27 .....do.....do.....	1.749 + "
1 .....do.....do.....	0.06480 — "	28 .....do.....do.....	1.814 + "
$1\frac{1}{2}$ .....do.....do.....	0.09720 — "	29 .....do.....do.....	1.869 — "
2 .....do.....do.....	0.12960 — "	30 .....do.....do.....	1.944 — "
$2\frac{1}{2}$ .....do.....do.....	0.16200 — "	40 .....do.....do.....	2.592 — "
3 .....do.....do.....	0.19440 — "	50 .....do.....do.....	3.240 — "
4 .....do.....do.....	0.25920 — "	1 drachm is equal to..	3.888 — "

F.—*Relation of Apothecaries' to Metric Weights*—Continued.

2 drachms is equal to...	7.776 — Gm.	14 ounces is equal to...	435.449 — Gm.
3.....do.....do.....	11.664 — “	15.....do.....do.....	466.552 + “
4.....do.....do.....	15.552 — “	16.....do.....do.....	497.656 — “
5.....do.....do.....	19.440 — “	17.....do.....do.....	528.759 + “
6.....do.....do.....	23.328 — “	18.....do.....do.....	559.863 + “
7.....do.....do.....	27.216 — “	19.....do.....do.....	590.966 + “
1 ounce is equal to....	31.103 + “	20.....do.....do.....	622.070 — “
1½ ounces is equal to..	46.655 + “	21.....do.....do.....	653.173 + “
2.....do.....do.....	62.207 — “	22.....do.....do.....	684.277 — “
3.....do.....do.....	93.310 + “	23.....do.....do.....	715.380 + “
4.....do.....do.....	124.414 — “	24.....do.....do.....	746.499 + “
5.....do.....do.....	155.517 + “	25.....do.....do.....	777.587 + “
6.....do.....do.....	186.621 — “	26.....do.....do.....	808.691 — “
7.....do.....do.....	217.724 + “	27.....do.....do.....	839.794 + “
8.....do.....do.....	248.823 — “	28.....do.....do.....	870.898 — “
9.....do.....do.....	279.931 + “	29.....do.....do.....	902.001 + “
10.....do.....do.....	311.035 — “	30.....do.....do.....	933.105 — “
11.....do.....do.....	342.138 + “	40.....do.....do.....	1244.14 + “
12.....do.....do.....	373.250 — “	50.....do.....do.....	1555.17 + “
13.....do.....do.....	404.345 + “	100.....do.....do.....	3110.35 — “

(1 avoirdupois ounce is equal to 28.350 + grammes.

1 avoirdupois pound is equal to 453.592 + grammes.)

POSOLOGICAL TABLE.^a

[Including the United States and British Pharmacopœias, and several non-official remedies in general use.]

Remedies.	Dose expressed in terms of apothecaries' weights and measures.	Dose expressed in metric terms.
Acet. distillat.....	1 to 2 fl. dr.....	4 to 8 C. C.
Acet. lobeliæ.....	30 to 60 min.....	2 to 4 C. C.
Acet. opii.....	7 to 10 min.....	0.40 to 0.60 C. C.
Acet. sanguinar.....	15 to 60 min.....	1 to 4 C. C.
Acet. scillæ.....	15 to 40 min.....	1 to 2.50 C. C.
Acid. acet. dil.....	1 to 2 fl. dr.....	4 to 8 C. C.
Acid. arsenios.....	1-60 to 1-12 gr.....	0.001 to 0.005 gm.
Acid. benzoic.....	5 to 15 gr.....	0.30 to 1 gm.
Acid. carbolic.....	1 to 3 gr.....	0.05 to 0.20 gm.
Acid. citric.....	10 to 30 gr.....	0.50 to 2 gm.
Acid. gallic.....	3 to 10 gr.....	0.20 to 0.60 gm.
Acid. hydrobromic.....	10 to 60 gr. in albuminuria.....	0.50 to 4 gm. in albuminuria.
Acid. hydrocyan. dil.....	10 to 50 gr.....	0.50 to 3 gm.
Acid. muriat. dil.....	2 to 8 min.....	0.10 to 0.50 C. C.
Acid. nitr. dil.....	10 to 30 min.....	0.50 to 2 C. C.
Acid. nitromur. dil.....	10 to 30 min.....	0.50 to 2 C. C.
Acid. phosphoric. dil.....	5 to 20 min.....	0.25 to 1.50 C. C.
Acid. sulph. arom.....	10 to 60 min.....	0.50 to 4 C. C.
Acid. sulph. dil.....	5 to 30 min.....	0.25 to 2 C. C.
Acid. sulphuros.....	5 to 30 min.....	0.25 to 2 C. C.
Acid. tannic.....	30 to 60 min.....	2 to 4 C. C.
Acid. tartaric.....	2 to 10 gr.....	0.10 to 0.60 gm.
Aconitia.....	10 to 30 gr.....	0.50 to 2 gm.
Aether fortior.....	1-400 to 1-50 gr.....	0.00015 to 0.0010 gm.
Aether acetic.....	20 to 40 min.....	1.50 to 3 C. C.
Aloë barbad.....	20 to 60 min.....	1.50 to 4 C. C.
Aloë purificata.....	2 to 4 gr.....	0.10 to 0.30 gm.
Aloë socotrina.....	2 to 4 gr.....	0.10 to 0.30 gm.
Alumen.....	3 to 6 gr.....	0.15 to 0.40 gm.
Ammoniacum.....	10 to 15 gr.....	0.50 to 1 gm.
Ammonii benzoas.....	10 to 20 gr.....	0.50 to 1.20 gm.
Ammonii bromid.....	10 to 20 gr.....	0.50 to 1.20 gm.
Ammonii carb.....	2 to 20 gr.....	0.10 to 1.20 gm.
Ammonii chlorid.....	3 to 10 gr.....	0.15 to 0.60 gm.
Ammonii iodid.....	10 to 30 gr.....	0.50 to 2 gm.
Ammonii phosph.....	2 to 5 gr.....	0.10 to 0.40 gm.
Ammonii valer.....	5 to 20 gr.....	0.30 to 1.20 gm.
Amyl nitris.....	5 to 10 gr.....	0.30 to 0.60 gm.
	2 to 5 min.....	0.10 to 0.40 C. C.

^aCompiled chiefly from Squire's Companion to the British Pharmacopœia, 10th edition, and from the United States Dispensatory.

Posological Table—Continued.

Remedies.	Dose expressed in terms of apothecaries' weights and measures.	Dose expressed in metric terms.
Ant. et pot. tartr.....	{ As a diaphoretic, 1-16 to 1-6 gr. As an emetic, 1 to 2 gr.....	0.004 to 0.01 gm. 0.05 to 0.10 gm.
Antimonii oxid.....	1 to 3 gr.....	0.05 to 0.15 gm.
Antimonii oxysulphur.....	1 to 5 gr.....	0.05 to 0.30 gm.
Antimonium sulphurat.....	1 to 5 gr.....	0.05 to 0.30 gm.
Aqua ammoniæ.....	10 to 20 min.....	0.50 to 1.20 C. C.
Aqua am. amar.....	3 to 4 fl. dr.....	10 to 15 C. C.
Aqua anisi.....	1 to 2 oz.....	30 to 60 C. C.
Aqua aurant. flor.....	$\frac{1}{2}$ to 1 oz.....	15 to 30 C. C.
Aqua camphoræ.....	$\frac{1}{2}$ to 2 oz.....	15 to 60 C. C.
Aqua carui.....	1 to 2 oz.....	30 to 60 C. C.
Aqua cinnamomi.....	1 to 2 oz.....	30 to 60 C. C.
Aqua creosoti.....	1 to 4 fl. dr.....	4 to 15 C. C.
Aqua fœniculi.....	1 to 2 oz.....	30 to 60 C. C.
Aqua laurocerasi.....	5 to 30 min.....	0.30 to 2 C. C.
Aqua menthæ pip.....	1 to 2 oz.....	30 to 60 C. C.
Aqua menth. vir.....	1 to 2 oz.....	30 to 60 C. C.
Aqua pimentæ.....	1 to 2 oz.....	30 to 60 C. C.
Aqua rosæ.....	1 to 2 oz.....	30 to 60 C. C.
Argenti nitras.....	1-6 to $\frac{1}{2}$ gr.....	0.01 to 0.02 gm.
Argenti oxid.....	$\frac{1}{2}$ to 2 gr.....	0.03 to 0.10 gm.
Arsenici iodid.....	1-48 to 1-24 gr.....	0.0015 to 0.003 gm.
Atropiæ sulphas.....	1-100 to 1-12 gr.....	0.0006 to 0.0055 gm.
Asafetida.....	5 to 20 gr.....	0.30 to 1.30 gm.
Bals. peruv.....	10 to 15 min.....	0.50 to 1 C. C.
Bals. tolu.....	10 to 20 gr.....	0.50 to 1.30 gm.
Beberiæ sulphas.....	1 to 10 gr.....	0.05 to 0.60 gm.
Bismuthi subcarb.....	5 to 20 gr.....	0.30 to 1.30 gm.
Bismuthi subnitr.....	5 to 15 gr.....	0.30 to 1.00 gm.
Borax.....	5 to 30 gr.....	0.30 to 2.00 gm.
Buchu.....	20 to 40 gr.....	1.00 to 3 gm.
Calcei carb. præcip.....	10 to 100 gr.....	0.50 to 6 gm.
Calcei hypophosphis.....	5 to 10 gr.....	0.30 to 0.60 gm.
Calcei phosph. præcip.....	10 to 40 gr.....	0.50 to 3 gm.
Calumba.....	10 to 20 gr.....	0.50 to 1.30 gm.
Camphora.....	2 to 10 gr.....	0.10 to 0.60 gm.
Capsicum.....	$\frac{1}{2}$ to 1 gr.....	0.03 to 0.06 gm.
Carbo ligni.....	20 to 60 gr.....	1.00 to 4 gm.
Cardamomum.....	5 to 20 gr.....	0.30 to 1.30 gm.
Caryophyllum.....	5 to 10 gr.....	0.30 to 0.60 gm.
Cascarilla.....	10 to 30 gr.....	0.50 to 2 gm.
Castoreum.....	5 to 10 gr.....	0.30 to 0.60 gm.
Catechu.....	10 to 30 gr.....	0.50 to 2 gm.
Cerii oxalas.....	1 to 2 gr.....	0.05 to 0.15 gm.
Chloral hydrate.....	5 to 20 gr.....	0.30 to 1.20 gm.
Chloroformum.....	1 to 5 min.....	0.05 to 0.30 C. C.
Chinchonæ cort.....	10 to 60 gr.....	0.50 to 4 gm.
Chinchoniæ sulph.....	1 to 20 gr.....	0.05 to 1.30 gm.
Chinchonidiæ sulph.....	1 to 20 gr.....	0.05 to 1.30 gm.
Cinnamom.....	10 to 30 gr.....	0.50 to 2 gm.
Colchici rad.....	2 to 8 gr.....	0.10 to 0.50 gm.
Colchici sem.....	2 to 10 gr.....	0.10 to 0.60 gm.
Colocynthis.....	2 to 8 gr.....	0.10 to 0.50 gm.
Conf. aromat.....	10 to 60 gr.....	0.50 to 4 gm.
Conf. opii.....	5 to 20 gr.....	0.30 to 1.30 gm.
Conf. piperis.....	1 to 2 dr.....	4 to 8 gm.
Conf. rosæ.....	$\frac{1}{2}$ to 1 dr.....	2 to 4 gm.
Conf. scammonii.....	10 to 30 gr.....	0.50 to 2 gm.
Conf. sennæ.....	1 to 2 dr.....	4 to 8 gm.
Conf. sulphuris.....	2 to 4 dr.....	8 to 15 gm.
Copaibæ.....	20 to 60 min.....	1 to 4 C. C.
Coriandrum.....	20 to 60 gr.....	0 to 4 gm.
Creosotum.....	1 to 3 min.....	0.05 to 0.20 C. C.
Creta præparata.....	10 to 100 gr.....	0.50 to 6 gm.
Croton chloral hydrate.....	1 to 10 gr.....	0.05 to 0.60 gm.
Cubeba.....	1 to 2 dr.....	4 to 8 gm.
Cupri acetas.....	$\frac{1}{2}$ to 6 gr.....	0.03 to 0.40 gm.
Cupri sulphas.....	$\frac{1}{2}$ to 10 gr.....	0.03 to 0.60 gm.
Cuprum ammoniat.....	$\frac{1}{4}$ to $\frac{1}{2}$ gr.....	0.015 to 0.03 gm.
Cusparia.....	10 to 40 gr.....	0.50 to 3 gm.
Cusso.....	2 to 4 dr.....	8 to 15 gm.
Decoct. aloës comp.....	$\frac{1}{2}$ to 2 fl. oz.....	15 to 60 C. C.
Decoct. cetrariæ.....	1 to 2 fl. oz.....	30 to 60 C. C.
Decoct. chimaphilæ.....	3 to 6 fl. oz.....	100 to 200 C. C.
Decoct. chinch. flav.....	1 to 2 fl. oz.....	30 to 60 C. C.
Decoct. chinch. rubr.....	1 to 2 fl. oz.....	30 to 60 C. C.
Decoct. cornus florid.....	1 to 2 fl. oz.....	30 to 60 C. C.
Decoct. dulcamaræ.....	1 to 2 fl. oz.....	30 to 60 C. C.

Posological Table—Continued.

Remedies.	Dose expressed in terms of apothecaries' weights and measures.	Dose expressed in metric terms.
Decoct. granati.....	1 to 2 fl. oz.....	30 to 60 C. C.
Decoct. hamatoxyli.....	1 to 2 fl. oz.....	30 to 60 C. C.
Decoct. hordei.....	4 to 8 fl. oz.....	100 to 250 C. C.
Decoct. pareire.....	1 to 2 fl. oz.....	30 to 60 C. C.
Decoct. quereus.....	1 to 2 fl. oz.....	30 to 60 C. C.
Decoct. sarsap. comp.....	2 to 6 fl. oz.....	50 to 200 C. C.
Decoct. senegæ.....	1 to 2 fl. oz.....	30 to 60 C. C.
Decoct. taraxaci.....	2 to 4 fl. oz.....	50 to 120 C. C.
Decoct. ulmi.....	4 to 6 fl. oz.....	100 to 200 C. C.
Decoct. uvæ ursi.....	1 to 2 fl. oz.....	30 to 60 C. C.
Digitalinum.....	1-60 to 1-30 gr.....	0.001 to 0.002 gm.
Digitalis.....	$\frac{1}{2}$ to 2 gr.....	0.03 to 0.10 gm.
Elaterium.....	1-16 to $\frac{1}{2}$ gr.....	0.004 to 0.03 gm.
Elateria.....	1-40 to $\frac{1}{2}$ gr.....	0.0015 to 0.008 gm.
Emetia.....	$\frac{1}{8}$ to $\frac{1}{4}$ gr.....	0.008 to 0.015 gm.
Ergota.....	20 to 30 gr.....	1.00 to 2 gm.
Extr. aconiti.....	1 to 2 gr.....	0.05 to 0.15 gm.
Extr. aloës.....	1 to 3 gr.....	0.05 to 0.20 gm.
Extr. anthemidis.....	2 to 10 gr.....	0.10 to 0.60 gm.
Extr. arnicæ.....	3 to 10 gr.....	0.20 to 0.60 gm.
Extr. belladonnæ.....	$\frac{1}{4}$ to 1 gr.....	0.015 to 0.06 gm.
Extr. bellad. alc.....	$\frac{1}{4}$ to 1 gr.....	0.015 to 0.06 gm.
Extr. cannab. ind.....	$\frac{1}{4}$ to 1 gr.....	0.015 to 0.06 gm.
Extr. chinchonæ.....	10 to 30 gr.....	0.50 to 2 gm.
Extr. colch. acct.....	1 to 2 gr.....	0.05 to 0.15 gm.
Extr. coloc. comp.....	2 to 5 gr.....	0.10 to 0.35 gm.
Extr. columbo.....	2 to 10 gr.....	0.10 to 0.60 gm.
Extr. conii.....	2 to 4 gr.....	0.10 to 0.30 gm.
Extr. conii alc.....	1 to 2 gr.....	0.05 to 0.15 gm.
Extr. digitalis.....	$\frac{1}{8}$ to $\frac{1}{4}$ gr.....	0.008 to 0.016 gm.
Extr. dulcamaræ.....	5 to 10 gr.....	0.30 to 0.60 gm.
Extr. gentianæ.....	10 to 15 gr.....	0.50 to 1 gm.
Extr. glycyrrh.....	30 to 60 gr.....	2 to 4 gm.
Extr. hamatoxyli.....	10 to 30 gr.....	0.50 to 2 gm.
Extr. hellebori.....	5 to 10 gr.....	0.30 to 0.60 gm.
Extr. hyoscyami.....	3 to 8 gr.....	0.20 to 0.50 gm.
Extr. hyoscyam. alc.....	1 to 2 gr.....	0.05 to 0.15 gm.
Extr. ignatiæ.....	$\frac{1}{2}$ to 1 $\frac{1}{2}$ gr.....	0.03 to 0.10 gm.
Extr. jalapæ.....	5 to 15 gr.....	0.30 to 1 gm.
Extr. juglandis.....	20 to 30 gr.....	1 to 2 gm.
Extr. krameriæ.....	5 to 20 gr.....	0.30 to 1.50 gm.
Extr. lactucæ.....	5 to 10 gr.....	0.30 to 0.60 gm.
Extr. lupuli.....	5 to 10 gr.....	0.30 to 0.60 gm.
Extr. nuc. vom.....	$\frac{1}{2}$ to 1 gr.....	0.02 to 0.06 gm.
Extr. opii.....	$\frac{1}{2}$ to 1 gr.....	0.03 to 0.06 gm.
Extr. papaveris.....	2 to 5 gr.....	0.10 to 0.30 gm.
Extr. pareiræ.....	10 to 20 gr.....	0.50 to 1.50 gm.
Extr. physostigmatis.....	1-16 to $\frac{1}{4}$ gr.....	0.004 to 0.015 gm.
Extr. podophylli.....	5 to 15 gr.....	0.30 to 1 gm.
Extr. quassia.....	3 to 5 gr.....	0.20 to 0.30 gm.
Extr. rhei.....	3 to 10 gr.....	0.20 to 0.60 gm.
Extr. senegæ.....	1 to 3 gr.....	0.05 to 0.20 gm.
Extr. stramon. fol.....	$\frac{1}{4}$ to $\frac{1}{2}$ gr.....	0.015 to 0.030 gm.
Extr. stramon. sem.....	$\frac{1}{4}$ to $\frac{1}{2}$ gr.....	0.015 to 0.030 gm.
Extr. taraxaci.....	5 to 15 gr.....	0.30 to 1 gm.
Extr. valerianæ.....	10 to 30 gr.....	0.50 to 2 gm.
Extr. bellad. rad. fluid.....	1 to 2 min.....	0.05 to 0.12 C. C.
Extr. buchu fluid.....	20 to 30 min.....	1 to 2 C. C.
Extr. chimaphila fl.....	20 to 40 min.....	1 to 3 C. C.
Extr. cimicifugæ fl.....	30 to 60 min.....	2 to 4 C. C.
Extr. chinchonæ fl.....	10 to 30 min.....	0.50 to 2 C. C.
Extr. colch. rad. fl.....	2 to 5 min.....	0.10 to 0.30 C. C.
Extr. colch. sem. fl.....	2 to 8 min.....	0.10 to 0.50 C. C.
Extr. columbo fl.....	15 to 30 min.....	1 to 2 C. C.
Extr. conii fruct. fl.....	2 to 6 min.....	0.10 to 0.40 C. C.
Extr. cornus flor. fl.....	15 to 40 min.....	1 to 3 C. C.
Extr. cubebæ fl.....	10 to 40 min.....	0.50 to 3 C. C.
Extr. digitalis fl.....	2 to 6 min.....	0.10 to 0.40 C. C.
Extr. dulcamaræ fl.....	30 to 60 min.....	2 to 4 C. C.
Extr. ergotæ fl.....	15 to 30 min.....	1 to 2 C. C.
Extr. erigeront. can. fl.....	30 to 60 min.....	2 to 4 C. C.
Extr. gelsemii fl.....	2 to 3 min.....	0.10 to 0.20 C. C.
Extr. gentianæ fl.....	10 to 40 min.....	0.50 to 3 C. C.
Extr. geranii fl.....	30 to 60 min.....	2 to 4 C. C.
Extr. glycyrrh. fl.....	1 to 2 fl. dr.....	4 to 8 C. C.
Extr. gossypii rad. fl.....	30 to 60 min.....	2 to 4 C. C.
Extr. hydrast. fl.....	1 to 2 fl. dr.....	2 to 4 C. C.
Extr. hyoscyami fl.....	5 to 10 min.....	0.30 to 0.60 C. C.

Posological Table—Continued.

Remedies.	Dose expressed in terms of apothecaries' weights and measures.	Dose expressed in metric terms.
Extr. ipecac. fl.....	15 to 30 min.....	1 to 2 C. C.
Extr. kramer. fl.....	20 to 30 min.....	1 to 2 C. C.
Extr. lupulinæ fl.....	10 to 15 min.....	0.50 to 1 C. C.
Extr. matico fl.....	30 to 60 min.....	2 to 4 C. C.
Extr. pareiræ fl.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Extr. prun. virg. fl.....	1 to 2 fl. dr.....	4 to 8 C. C.
Extr. rhei fl.....	10 to 30 min.....	0.50 to 2 C. C.
Extr. rubi fl.....	30 to 60 min.....	2 to 4 C. C.
Extr. sabinæ fl.....	4 to 8 min.....	0.25 to 0.50 C. C.
Extr. sarsap. comp. fl.....	30 to 60 min.....	2 to 4 C. C.
Extr. sarsap. fl.....	1 to 2 fl. dr.....	4 to 8 C. C.
Extr. scillæ fl.....	2 to 3 min.....	0.10 to 0.20 C. C.
Extr. senegæ fl.....	1 to 5 min.....	0.05 to 0.30 C. C.
Extr. sennæ fl.....	1 to 4 fl. dr.....	4 to 15 C. C.
Extr. serpent. fl.....	20 to 30 min.....	1 to 2 C. C.
Extr. spigel. et sennæ fl.....	2 to 4 fl. dr.....	8 to 15 C. C.
Extr. spigeliæ fl.....	1 to 2 fl. dr.....	4 to 8 C. C.
Extr. stilling. fl.....	1 to 2 fl. dr.....	4 to 8 C. C.
Extr. taraxaci fl.....	1 to 2 fl. dr.....	4 to 8 C. C.
Extr. uvæ ursi fl.....	30 to 60 min.....	2 to 4 C. C.
Extr. valerianæ fl.....	30 to 60 min.....	2 to 4 C. C.
Extr. veratr. vir. fl.....	2 to 4 min.....	0.10 to 0.30 C. C.
Extr. zingiber. fl.....	10 to 20 min.....	0.50 to 1.30 C. C.
Fel bovin. purif.....	3 to 6 gr.....	0.20 to 0.40 gm.
Ferri arsenias.....	1-16 to 1 gr.....	0.004 to 0.06 gm.
Ferri carb. sacch.....	5 to 20 gr.....	0.30 to 1.30 gm.
Ferri chlorid.....	2 to 5 gr.....	0.10 to 0.30 gm.
Ferri citras.....	5 to 10 gr.....	0.30 to 0.60 gm.
Ferri et ammon. citr.....	5 to 10 gr.....	0.30 to 0.60 gm.
Ferri et ammon. sulph.....	5 to 15 gr.....	0.30 to 1 gm.
Ferri et ammon. tart.....	10 to 30 gr.....	0.50 to 2 gm.
Ferri et potass. tart.....	10 to 30 gr.....	0.50 to 2 gm.
Ferri et quin. citr.....	5 to 10 gr.....	0.30 to 0.60 gm.
Ferri et strychn. citr.....	3 to 5 gr.....	0.20 to 0.30 gm.
Ferri ferrocyanidum.....	3 to 5 gr.....	0.20 to 0.30 gm.
Ferri iodidum.....	1 to 5 gr.....	0.05 to 0.20 gm.
Ferri lactas.....	1 to 5 gr.....	0.05 to 0.20 gm.
Ferri oxalas.....	2 to 3 gr.....	0.10 to 0.20 gm.
Ferri oxid. magnet.....	5 to 10 gr.....	0.30 to 0.60 gm.
Ferri oxid. hydr.....	5 to 30 gr.....	0.30 to 2 gm.
Ferri phosphas.....	5 to 10 gr.....	0.30 to 0.60 gm.
Ferri pyrophosphas.....	2 to 5 gr.....	0.10 to 0.30 gm.
Ferri subcarbonas.....	5 to 30 gr.....	0.30 to 2 gm.
Ferri sulphas.....	3 to 5 gr.....	0.20 to 0.30 gm.
Ferri sulphas exsicc.....	$\frac{1}{2}$ to 3 gr.....	0.03 to 0.20 gm.
Ferrum reductum.....	1 to 5 gr.....	0.05 to 0.30 gm.
Gallæ.....	10 to 20 gr.....	0.50 to 1.30 gm.
Gambogium.....	1 to 4 gr.....	0.05 to 0.25 gm.
Gentiana.....	10 to 40 gr.....	0.50 to 3 gm.
Glycerinum.....	10 to 60 min.....	0.50 to 4 C. C.
Glycerit. acidi carbol.....	5 to 10 min.....	0.30 to 0.60 C. C.
Glycerit. acidi gallici.....	20 to 60 min.....	1 to 4 C. C.
Glycerit. acidi tannici.....	10 to 40 min.....	0.50 to 3 C. C.
Guaiaci resina.....	10 to 30 gr.....	0.50 to 2 gm.
Guarana.....	10 to 20 gr.....	0.50 to 1.30 gm.
Hydrarg. chlorid. corros.....	1-16 to 1-6 gr.....	0.004 to 0.01 gm.
Hydrarg. chlorid. mite.....	$\frac{1}{2}$ to 8 gr.....	0.03 to 0.50 gm.
Hydrarg. iodid. rubr.....	1-16 to $\frac{1}{4}$ gr.....	0.004 to 0.015 gm.
Hydrarg. iodid. flav.....	1 to 3 gr.....	0.05 to 0.20 gm.
Hydrarg. oxid. rubr.....	$\frac{1}{4}$ to 1 gr.....	0.015 to 0.06 gm.
Hydrarg. sulph. flav.....	$\frac{1}{4}$ to 1 gr.....	0.015 to 0.06 gm.
Hydrarg. c. creta.....	3 to 8 gr.....	0.20 to 0.50 gm.
Hydrastin.....	3 to 5 gr.....	0.20 to 0.30 gm.
Hyoscyami fol.....	5 to 10 gr.....	0.30 to 0.65 gm.
Infus. angusturæ.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. anthemid.....	1 to 3 fl. oz.....	30 to 100 C. C.
Infus. aurant.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. aurant. comp.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. buchu.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. capsici.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. caryophylli.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. cascarillæ.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. catechu.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. chiratæ.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. chinch. flav.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. chinch. rubr.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. columbo.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. cuspariæ.....	1 to 2 fl. oz.....	30 to 60 C. C.

Posological Table—Continued.

Remedies.	Dose expressed in terms of apothecaries' weights and measures.	Dose expressed in metric terms.
Infus. cusso.....	2 to 4 fl. oz.....	50 to 150 C. C.
Infus. digitalis.....	2 to 4 fl. dr.....	8 to 15 C. C.
Infus. dulcamaræ.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. ergotæ.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. eupatorii.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. gent. comp.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. humuli.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. juniperi.....	2 to 3 fl. oz.....	50 to 100 C. C.
Infus. krameria.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. lini. comp.....	2 to 8 fl. oz.....	50 to 250 C. C.
Infus. lupulina.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. matico.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. pareira.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. prun. virg.....	2 to 3 fl. oz.....	50 to 100 C. C.
Infus. quassia.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. rhei.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. rosæ comp.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. salvia.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. senegæ.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. sennæ.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. sennæ comp.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. serpent.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. spigelia.....	4 to 8 fl. oz.....	100 to 250 C. C.
Infus. taraxaci.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. uvæ ursi.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. valerianæ.....	1 to 2 fl. oz.....	30 to 60 C. C.
Infus. zingiberis.....	1 to 2 fl. oz.....	30 to 60 C. C.
Iodinium.....	$\frac{1}{4}$ to $\frac{1}{2}$ gr.....	0.015 to 0.03 gm.
Ipecacuanha.....	Expectorant, $\frac{1}{2}$ to 2 gr.....	0.03 to 0.13 gm.
Jaborandi.....	Emetic, 15 to 30 gr.....	1 to 2 gm.
Jalapa.....	30 to 60 gr.....	2 to 4 gm.
Kamala.....	10 to 30 gr.....	0.50 to 2 gm.
Kino.....	1 to 2 dr.....	4 to 8 gm.
Krameria.....	10 to 30 gr.....	0.50 to 2 gm.
Liqu. ammon. acet.....	20 to 60 gr.....	1.20 to 4 gm.
Liqu. arsenici chlor.....	2 to 6 fl. dr.....	8 to 25 C. C.
Liqu. arsen. et hydr. iod.....	2 to 8 min.....	0.10 to 0.50 C. C.
Liqu. bism. ammon. citr.....	5 to 20 min.....	0.30 to 1.20 C. C.
Liqu. calcis.....	1 to 2 fl. dr.....	4 to 8 C. C.
Liqu. ferri chloridi.....	$\frac{1}{2}$ to 2 fl. oz.....	15 to 60 C. C.
Liqu. ferri citrat.....	10 to 30 min.....	0.50 to 2 C. C.
Liqu. ferri nitrat.....	5 to 20 min.....	0.30 to 1.30 C. C.
Liqu. ferri nitrat.....	30 to 60 min.....	2 to 4 C. C.
Liqu. iodinii comp.....	1 to 4 min.....	0.05 to 0.25 C. C.
Liqu. magnes. citr.....	6 to 12 fl. oz.....	150 to 350 C. C.
Liqu. morphia acet.....	10 to 30 min.....	0.50 to 2 C. C.
Liqu. morph. sulph., U. S. P.....	10 to 30 min.....	0.50 to 2 C. C.
Liqu. morph. sulph., (Mag.).....	4 to 8 min.....	0.25 to 0.50 C. C.
Liqu. potassæ.....	15 to 60 min.....	1 to 4 C. C.
Liqu. potassii arsenit.....	2 to 8 min.....	0.10 to 0.50 C. C.
Liqu. potassii citrat.....	2 to 4 fl. dr.....	8 to 15 C. C.
Liqu. sodæ.....	30 to 60 min.....	2 to 4 C. C.
Liqu. sodii arseniat.....	2 to 8 min.....	0.10 to 0.50 C. C.
Lithii carb.....	3 to 6 gr.....	0.20 to 0.40 gm.
Lithii citras.....	5 to 10 gr.....	0.30 to 0.60 gm.
Lobelia semen.....	2 to 10 gr.....	0.10 to 0.60 gm.
Lupulina.....	5 to 10 gr.....	0.30 to 0.60 gm.
Magnesia.....	10 to 20 gr.....	0.50 to 1.20 gm.
Magnesii carb.....	10 to 30 gr.....	0.50 to 2 gm.
Magnesii sulph.....	2 to 6 dr.....	8 to 25 gm.
Mangan. sulph.....	5 to 20 gr.....	0.30 to 1.30 gm.
Manna.....	2 to 8 dr.....	8 to 30 gm.
Mist. ammoniaci.....	$\frac{1}{2}$ to 1 fl. oz.....	15 to 30 C. C.
Mist. amygdalæ.....	1 to 2 fl. oz.....	30 to 60 C. C.
Mist. assæfetidæ.....	2 to 4 fl. oz.....	50 to 150 C. C.
Mist. chloroformi.....	$\frac{1}{2}$ to 1 fl. oz.....	15 to 30 C. C.
Mist. creosoti.....	1 to 2 fl. oz.....	30 to 60 C. C.
Mist. cretæ.....	1 to 2 fl. oz.....	30 to 60 C. C.
Mist. ferri comp.....	1 to 2 fl. oz.....	30 to 60 C. C.
Mist. glycyrrh. comp.....	2 to 4 fl. dr.....	8 to 15 C. C.
Mist. guaiaci.....	$\frac{1}{2}$ to 2 fl. oz.....	15 to 60 C. C.
Mist. potass. citr.....	2 to 4 fl. dr.....	8 to 15 C. C.
Mist. scammonii.....	$\frac{1}{2}$ to 2 fl. oz.....	15 to 60 C. C.
Mist. sennæ comp.....	1 to 2 fl. oz.....	30 to 60 C. C.
Morphia.....	1-12 to $\frac{1}{2}$ gr.....	0.005 to 0.03 gm.
Morphiæ acetas.....	$\frac{1}{16}$ to $\frac{1}{2}$ gr.....	0.008 to 0.03 gm.
Morphiæ chlorid.....	$\frac{1}{16}$ to $\frac{1}{2}$ gr.....	0.008 to 0.03 gm.
Morphiæ sulph.....	$\frac{1}{8}$ to $\frac{1}{2}$ gr.....	0.008 to 0.03 gm.

Posological Table—Continued.

Remedies.	Dose expressed in terms of apothecaries' weights and measures.	Dose expressed in metric terms.
Moschus.....	5 to 10 gr.....	0.30 to 0.60 gm.
Mucilago acaciæ.....	1 to 4 fl. dr.....	4 to 8 C. C.
Mucilago ulmi.....	2 to 8 fl. dr.....	8 to 15 C. C.
Myrrhæ.....	10 to 30 gr.....	0.50 to 2 gm.
Nux vomica.....	1 to 3 gr.....	0.05 to 0.20 gm.
Ol. amygd. expr.....	2 to 4 fl. dr.....	8 to 15 C. C.
Ol. anethi.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. anisi.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. anthemid.....	2 to 4 min.....	0.10 to 0.25 C. C.
Ol. cajuputi.....	1 to 5 min.....	0.05 to 0.30 C. C.
Ol. cari.....	2 to 4 min.....	0.10 to 0.25 C. C.
Ol. caryophylli.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. chenopodii.....	2 to 5 min.....	0.10 to 0.30 C. C.
Ol. cinnamomi.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. copaibæ.....	5 to 30 min.....	0.30 to 2 C. C.
Ol. coriandri.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. cubebæ.....	5 to 20 min.....	0.30 to 1.30 C. C.
Ol. erigeront can.....	3 to 8 min.....	0.20 to 0.50 C. C.
Ol. fœniculi.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. gaultheriæ.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. hedeomæ.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. juniperi.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. lavendulæ.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. limonis.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. menth. pip.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. menth. vir.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. monardæ.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. morrhuæ.....	1 to 4 fl. dr.....	4 to 15 C. C.
Ol. myristicæ.....	2 to 6 min.....	0.10 to 0.40 C. C.
Ol. oliivæ.....	$\frac{1}{2}$ to 1 fl. oz.....	15 to 30 C. C.
Ol. origani.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. phosphorat.....	5 to 10 min.....	0.30 to 0.60 C. C.
Ol. pimentæ.....	1 to 3 min.....	0.05 to 0.20 C. C.
Ol. ricini.....	1 to 8 fl. dr.....	4 to 30 C. C.
Ol. rosmarini.....	2 to 5 min.....	0.10 to 0.30 C. C.
Ol. rutæ.....	2 to 6 min.....	0.10 to 0.40 C. C.
Ol. sabinæ.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. sassafras.....	1 to 4 min.....	0.05 to 0.25 C. C.
Ol. terebinth.....	10 to 30 min.....	0.50 to 2 C. C.
Ol. tiglli.....	$\frac{1}{3}$ to 1 min.....	0.02 to 0.06 C. C.
Ol. valerianæ.....	1 to 3 min.....	0.05 to 0.20 C. C.
Oleoresina capsici.....	$\frac{1}{2}$ to 1 gr.....	0.03 to 0.06 gm.
Oleoresina cubebæ.....	5 to 30 gr.....	0.30 to 2 gm.
Oleoresina filicis.....	20 to 30 gr.....	1 to 2 gm.
Oleoresina lupulinæ.....	2 to 5 gr.....	0.10 to 0.30 gm.
Oleoresina piperis.....	1 to 2 gr.....	0.05 to 0.10 gm.
Oleoresina zingiberis.....	1 to 2 gr.....	0.05 to 0.10 gm.
Opium.....	$\frac{1}{4}$ to 2 gr.....	0.03 to 0.10 gm.
Pareira.....	30 to 60 gr.....	2 to 4 gm.
Pepsina.....	2 to 8 gr.....	0.10 to 0.50 gm.
Phosphorus.....	1-64 to 1-32 gr.....	0.001 to 0.002 gm.
Physostigmæ faba.....	1 to 4 gr.....	0.05 to 0.25 gm.
Pilulæ aloës.....	4 to 8 gr.....	0.25 to 0.50 gm.
Pil. aloës et assæfet.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pil. aloës et ferri.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pil. aloës et mastiches.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pil. aloës et myrrhæ.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pil. antim. comp.....	3 to 6 gr.....	0.20 to 0.40 gm.
Pil. assæfetidæ.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pil. cathart. comp.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pil. coloc. et hyoseyami.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pil. conii comp.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pil. copaibæ.....	15 to 60 gr.....	1 to 4 gm.
Pil. ferri carbonat.....	5 to 20 gr.....	0.30 to 1.30 gm.
Pil. ferri comp.....	5 to 15 gr.....	0.30 to 1 gm.
Pil. ferri iodidi.....	3 to 8 gr.....	0.20 to 0.50 gm.
Pil. galbani comp.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pil. hydrarg.....	3 to 10 gr.....	0.20 to 0.60 gm.
Pil. hydrag. subchlor. co.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pil. ipecac. c. scilla.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pil. opii.....	$\frac{1}{2}$ to 2 gr.....	0.03 to 0.10 gm.
Pil. opii et camph.....	$1\frac{1}{2}$ to 3 gr.....	0.10 to 0.20 gm.
Pil. phosphori.....	1-30 to 1-15 gr.....	0.002 to 0.004 gm.
Pil. plumbi c. opio.....	2 to 4 gr.....	0.10 to 0.25 gm.
Pil. quiniæ sulph.....	2 to 10 gr.....	0.10 to 0.60 gm.
Pil. rhei.....	Purgative, 25 to 40 gr..... Laxative, 6 to 12 gr.....	1.50 to 3 gm.
Pil. rhei comp.....		0.40 to 0.75 gm.
	10 to 20 gr.....	0.50 to 1.30 gm.

Posological Table—Continued.

Remedies.	Dose expressed in terms of apothecaries' weights and measures.	Dose expressed in metric terms.
Pil. sapon. comp.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pil. scammon. comp.....	10 to 30 gr.....	0.50 to 2 gm.
Pil. seilla comp.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pimenta.....	10 to 30 gr.....	0.50 to 2 gm.
Piper.....	5 to 20 gr.....	0.30 to 1.30 gm.
Pix liquida.....	20 to 60 min.....	1.00 to 4 C. C.
Plumbi acetat.....	2 to 8 gr.....	0.10 to 0.50 gm.
Podophyllum.....	10 to 20 gr.....	0.50 to 1.30 gm.
Potassii acetat.....	10 to 20 gr.....	0.50 to 1.30 gm.
Potass. bicarb.....	10 to 20 gr.....	0.50 to 1.30 gm.
Potass. bitartr.....	$\frac{1}{2}$ to 4 dr.....	2 to 15 gm.
Potass. bromid.....	20 to 60 gr.....	1.00 to 4 gm.
Potass. carb.....	5 to 15 gr.....	0.30 to 1 gm.
Potass. chloras.....	10 to 20 gr.....	0.50 to 1.30 gm.
Potass. citras.....	20 to 60 gr.....	1 to 5 gm.
Potass. cyanid.....	$\frac{1}{2}$ to $\frac{1}{8}$ gr.....	0.005 to 0.008 gm.
Potass. et sod. tartr.....	3 to 8 dr.....	10 to 30 gm.
Potass. iodid.....	2 to 10 gr.....	0.10 to 0.60 gm.
Potass. nitras.....	5 to 20 gr.....	0.30 to 1.30 gm.
Potass. sulphas.....	10 to 20 gr.....	0.50 to 1.30 gm.
Potass. sulphis.....	10 to 20 gr.....	0.50 to 1.30 gm.
Potass. sulphuret.....	2 to 10 gr.....	0.10 to 0.60 gm.
Potass. tartras.....	$\frac{1}{2}$ to 4 dr.....	2 to 15 gm.
Pulv. aloës et canellæ.....	10 to 20 gr.....	0.50 to 1.30 gm.
Pulv. amygd. comp.....	1 to 2 dr.....	4 to 8 gm.
Pulv. antimonialis.....	2 to 6 gr.....	0.10 to 0.40 gm.
Pulv. aromaticus.....	3 to 10 gr.....	0.20 to 0.60 gm.
Pulv. catechu comp.....	15 to 30 gr.....	1 to 2 gm.
Pulv. cinnam. comp.....	3 to 10 gr.....	0.20 to 0.60 gm.
Pulv. cretæ arom.....	30 to 60 gr.....	2 to 4 gm.
Pulv. cret. arom. c. opio.....	10 to 40 gr.....	0.50 to 2.50 gm.
Pulv. ipecac. comp.....	5 to 10 gr.....	0.30 to 0.60 gm.
Pulv. jalapæ comp.....	10 to 20 gr.....	0.50 to 1.30 gm.
Pulv. kino comp.....	3 to 8 gr.....	0.20 to 0.50 gm.
Pulv. opii comp.....	2 to 5 gr.....	0.10 to 0.30 gm.
Pulv. rhei comp.....	30 to 60 gr.....	2 to 4 gm.
Pulv. scammon. comp.....	10 to 20 gr.....	0.50 to 1.30 gm.
Pulv. tragacanth. comp.....	10 to 60 gr.....	0.50 to 4 gm.
Quercus.....	$\frac{1}{2}$ to 2 dr.....	2 to 8 gm.
Quinia.....	1 to 5 gr.....	0.05 to 0.30 gm.
Quinia arsenias.....	1 to 2 gr.....	0.05 to 0.12 gm.
Quinia bromid.....	1 to 5 gr.....	0.05 to 0.30 gm.
Quinia sulph.....	1 to 5 gr.....	0.05 to 0.30 gm.
Quinia valer.....	1 to 5 gr.....	0.05 to 0.30 gm.
Resina jalapæ.....	2 to 5 gr.....	0.10 to 0.30 gm.
Resina podophylli.....	1-6 to $\frac{1}{4}$ gr.....	0.01 to 0.03 gm.
Resina scammonii.....	4 to 8 gr.....	0.25 to 0.50 gm.
Rheum.....	1 to 30 gr.....	0.05 to 2 gm.
Sabadilla.....	4 to 6 gr.....	0.25 to 0.40 gm.
Sabina.....	4 to 6 gr.....	0.25 to 0.40 gm.
Salicinum.....	10 to 30 gr.....	0.50 to 2 gm.
Santonica.....	10 to 60 gr.....	0.50 to 4 gm.
Santoninum.....	2 to 6 gr.....	0.10 to 0.40 gm.
Sapo.....	5 to 15 gr.....	0.30 to 1 gm.
Scammonium.....	4 to 10 gr.....	0.25 to 0.60 gm.
Seilla.....	1 to 2 gr.....	0.05 to 0.10 gm.
Senega.....	15 to 20 gr.....	1 to 1.30 gm.
Senna.....	10 to 30 gr.....	0.50 to 2 gm.
Serpentaria.....	10 to 15 gr.....	0.50 to 1 gm.
Sodii acetat.....	20 to 60 gr.....	1 to 4 gm.
Sodii arsenias.....	1-16 to $\frac{1}{8}$ gr.....	0.004 to 0.008 gm.
Sodii biboras.....	10 to 30 gr.....	0.50 to 2 gm.
Sodii bicarb.....	10 to 30 gr.....	0.50 to 2 gm.
Sodii bisulphis.....	10 to 20 gr.....	0.50 to 1.20 gm.
Sodii carbonas.....	10 to 30 gr.....	0.50 to 2 gm.
Sodii carb. exsicc.....	5 to 20 gr.....	0.30 to 1.30 gm.
Sodii hypophosphis.....	10 to 30 gr.....	0.50 to 2 gm.
Sodii phosphas.....	2 to 8 gr.....	0.10 to 0.50 gm.
Sodii sulphis.....	10 to 30 gr.....	0.50 to 2 gm.
Spir. ætheris comp.....	30 to 60 min.....	2 to 4 C. C.
Spir. ætheris nitros.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Spir. ammon.....	10 to 30 min.....	0.50 to 2 C. C.
Spir. ammon. arom.....	20 to 60 min.....	1 to 4 C. C.
Spir. ammon fetid.....	30 to 60 min.....	2 to 4 C. C.
Spir. armorac. comp.....	1 to 3 fl. dr.....	4 to 12 C. C.
Spir. anisi.....	30 to 60 min.....	2 to 4 C. C.
Spir. cajuputi.....	30 to 60 min.....	2 to 4 C. C.
Spir. camphoræ.....	10 to 30 min.....	0.50 to 2 C. C.

Posological Table—Continued.

Remedies.	Dose expressed in terms of apothecaries' weights and measures.	Dose expressed in metric terms.
Spir. chloroformi.....	20 to 60 min.....	1 to 4 C. C.
Spir. cinnamomi.....	30 to 60 min.....	2 to 4 C. C.
Spir. juniperi.....	30 to 60 min.....	2 to 4 C. C.
Spir. juniperi comp.....	30 to 60 min.....	2 to 4 C. C.
Spir. lavendulæ.....	30 to 60 min.....	2 to 4 C. C.
Spir. lavend. comp.....	30 to 60 min.....	2 to 4 C. C.
Spir. limonis.....	30 to 60 min.....	2 to 4 C. C.
Spir. menth. pip.....	30 to 60 min.....	2 to 4 C. C.
Spir. menth. vir.....	30 to 60 min.....	2 to 4 C. C.
Spir. myristicæ.....	30 to 60 min.....	2 to 4 C. C.
Spir. rosmarini.....	10 to 30 min.....	0.50 to 2 C. C.
Strychnia.....	1-64 to 1-12 gr.....	0.001 to 0.005 gm.
Strychniæ acet.....	1-64 to 1-12 gr.....	0.001 to 0.005 gm.
Strychniæ nitr.....	1-64 to 1-12 gr.....	0.001 to 0.005 gm.
Strychniæ sulph.....	1-64 to 1-12 gr.....	0.001 to 0.005 gm.
Succus conii.....	30 to 60 min.....	2 to 4 C. C.
Succus limonis.....	$\frac{1}{2}$ to 4 fl. oz.....	2 to 15 C. C.
Succus taraxaci.....	2 to 4 fl. dr.....	8 to 15 C. C.
Sulphur præcipit.....	$\frac{1}{2}$ to 2 dr.....	2 to 8 C. C.
Sulph. subl.....	$\frac{1}{2}$ to 4 dr.....	2 to 15 gm.
Sulph. subl. lot.....	$\frac{1}{2}$ to 4 dr.....	2 to 15 gm.
Syr. acaciæ.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. acid. citr.....	1 to 4 fl. dr.....	4 to 15 C. C.
Syr. allii.....	1 to 4 fl. dr.....	4 to 15 C. C.
Syr. amygd.....	1 to 4 fl. dr.....	4 to 15 C. C.
Syr. aurant. cort.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. aurant. flor.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. ferri bromidi.....	20 to 60 min.....	1 to 4 C. C.
Syr. ferri iodidi.....	20 to 60 min.....	1 to 4 C. C.
Syr. hemidesmi.....	1 to 4 fl. dr.....	4 to 15 C. C.
Syr. ipecacuanhæ.....	{ Emetic, 4 to 8 fl. dr..... Expect., $\frac{1}{2}$ to 1 fl. dr.....	15 to 30 C. C. 2 to 4 C. C.
Syr. krameria.....	$\frac{1}{2}$ to 4 fl. dr.....	2 to 15 C. C.
Syr. lactucarii.....	2 to 3 fl. dr.....	8 to 12 C. C.
Syr. limonis.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. mori.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. papaveris.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. prun. virg.....	1 to 4 fl. dr.....	4 to 15 C. C.
Syr. rhamni.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. rhei.....	1 to 4 fl. dr.....	4 to 15 C. C.
Syr. rhei arom.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. rhœados.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. rosæ.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. rubi.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. sarsap. comp.....	1 to 4 fl. dr.....	4 to 15 C. C.
Syr. scillæ.....	$\frac{1}{2}$ to 1 fl. dr.....	2 to 4 C. C.
Syr. scillæ comp.....	10 to 60 min.....	0.50 to 4 C. C.
Syr. seneg.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. sennæ.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. tolut.....	1 to 2 fl. dr.....	4 to 8 C. C.
Syr. zingib.....	1 to 4 fl. dr.....	4 to 15 C. C.
Tamar ind.....	1 to 2 dr.....	4 to 8 gm.
Tinct. aconiti fol.....	10 to 20 min.....	0.50 to 1.30 C. C.
Tinct. aconiti rad.....	5 to 15 min.....	0.30 to 1 C. C.
Tinct. aconiti rad. Flemming.....	2 to 3 min.....	0.10 to 0.20 C. C.
Tinct. aloës.....	1 to 2 fl. dr.....	4 to 8 C. C.
Tinct. aloës et myrrhæ.....	1 to 2 fl. dr.....	4 to 8 C. C.
Tinct. arnicæ.....	1 to 2 fl. dr.....	4 to 8 C. C.
Tinct. assæfœtidæ.....	30 to 60 min.....	2 to 4 C. C.
Tinct. aurantii.....	1 to 2 fl. dr.....	4 to 8 C. C.
Tinct. bellad.....	5 to 20 min.....	0.30 to 1.30 C. C.
Tinct. buchu.....	1 to 2 fl. dr.....	4 to 8 C. C.
Tinct. cannab. ind.....	5 to 20 min.....	0.30 to 1.30 C. C.
Tinct. canthar.....	5 to 20 min.....	0.30 to 1.30 C. C.
Tinct. capsici.....	10 to 20 min.....	0.50 to 1.30 C. C.
Tinct. card.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. card comp.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. cascarillæ.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. castorei.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. catechu.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. chinch.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. chinch. comp.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. chiratæ.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. cinnam.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. cocci.....	30 to 90 min.....	2 to 6 C. C.
Tinct. colchici rad.....	5 to 20 min.....	0.30 to 1.30 C. C.
Tinct. colchici sem.....	15 to 30 min.....	1 to 2 C. C.
Tinct. conii.....	$\frac{1}{2}$ to 1 fl. dr.....	2 to 4 C. C.

Posological Table—Continued.

Remedies.	Dose expressed in terms of apothecaries' weights and measures.	Dose expressed in metric terms.
Tinct. croci.....	$\frac{1}{2}$ to 1 fl. dr.....	2 to 4 C. C.
Tinct. cubebæ.....	1 to 2 fl. dr.....	4 to 8 C. C.
Tinct. digitalis.....	10 to 30 min.....	0.50 to 2 C. C.
Tinct. ergotæ.....	15 to 60 min.....	1 to 4 C. C.
Tinct. ferri acet.....	5 to 30 min.....	0.30 to 2 C. C.
Tinct. ferri chlorid.....	10 to 30 min.....	0.50 to 2 C. C.
Tinct. gallæ.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. gent. comp.....	1 to 2 fl. dr.....	4 to 8 C. C.
Tinct. guaiaci.....	$\frac{1}{2}$ to 1 fl. dr.....	2 to 4 C. C.
Tinct. guaiaci ammon.....	$\frac{1}{2}$ to 1 fl. dr.....	2 to 4 C. C.
Tinct. hellebori.....	$\frac{1}{2}$ to 1 fl. dr.....	2 to 4 C. C.
Tinct. humuli.....	1 to 3 fl. dr.....	4 to 12 C. C.
Tinct. hyoscyami fol.....	15 to 60 min.....	1 to 4 C. C.
Tinct. hyoscyami sem.....	10 to 40 min.....	0.50 to 3 C. C.
Tinct. iodinii.....	5 to 20 min.....	0.30 to 1.30 C. C.
Tinct. iodinii comp.....	10 to 20 min.....	0.50 to 1.30 C. C.
Tinct. jalapæ.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. kino.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. krameriæ.....	1 to 2 fl. dr.....	4 to 8 C. C.
Tinct. lobeliæ.....	10 to 30 min.....	0.50 to 2 C. C.
Tinct. lupulinae.....	1 to 2 fl. dr.....	4 to 8 C. C.
Tinct. myrrhæ.....	$\frac{1}{2}$ to 1 fl. dr.....	2 to 4 C. C.
Tinct. nuc vom.....	10 to 30 min.....	0.50 to 2 C. C.
Tinct. opii.....	10 to 30 min.....	0.50 to 2 C. C.
Tinct. opii acet.....	10 to 20 min.....	0.50 to 1.30 C. C.
Tinct. opii ammon.....	$\frac{1}{2}$ to 1 fl. dr.....	2 to 4 C. C.
Tinct. opii camph.....	15 to 60 min.....	1 to 4 C. C.
Tinct. opii deodor.....	10 to 30 min.....	0.50 to 2 C. C.
Tinct. quassia.....	1 to 2 fl. dr.....	4 to 8 C. C.
Tinct. quiniæ.....	1 to 1½ fl. dr.....	4 to 6 C. C.
Tinct. quiniæ ammon.....	1 to 2 fl. dr.....	4 to 8 C. C.
Tinct. rhei.....	1 to 8 fl. dr.....	4 to 30 C. C.
Tinct. rhei et sennæ.....	$\frac{1}{2}$ to 2 fl. oz.....	15 to 60 C. C.
Tinct. sanguinariæ.....	3 to 4 fl. dr.....	10 to 15 C. C.
Tinct. scillæ.....	15 to 30 min.....	1 to 2 C. C.
Tinct. senegæ.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. sennæ.....	2 to 8 fl. dr.....	8 to 30 C. C.
Tinct. serpentariæ.....	$\frac{1}{2}$ to 2 fl. dr.....	2 to 8 C. C.
Tinct. stramon. fol.....	10 to 20 min.....	0.50 to 1.30 C. C.
Tinct. stramon. sem.....	10 to 20 min.....	0.50 to 1.30 C. C.
Tinct. sumbul.....	15 to 30 min.....	1 to 2 C. C.
Tinct. tolut.....	15 to 40 min.....	1 to 2.50 C. C.
Tinct. valeriana.....	1 to 2 fl. dr.....	4 to 8 C. C.
Tinct. valer. ammon.....	$\frac{1}{2}$ to 1 fl. dr.....	2 to 4 C. C.
Tinct. ver. vir.....	5 to 20 min.....	0.30 to 1.30 C. C.
Tinct. zingiberis.....	10 to 30 min.....	0.50 to 2 C. C.
Uva ursi.....	10 to 30 gr.....	0.50 to 2 gm.
Valeriana.....	10 to 30 gr.....	0.50 to 2 gm.
Veratr. viride.....	4 to 6 gr.....	0.25 to 0.4 gm.
Vin. aloës.....	1 to 2 fl. dr.....	4 to 8 C. C.
Vin. antimonii.....	10 to 60 min.....	0.50 to 4 C. C.
Vin. colch. rad.....	10 to 30 min.....	0.50 to 2 C. C.
Vin. colch. sem.....	$\frac{1}{2}$ to 1 fl. dr.....	2 to 4 C. C.
Vin. ergotæ.....	1 to 3 fl. dr.....	4 to 12 C. C.
Vin. ferri.....	1 to 4 fl. dr.....	4 to 15 C. C.
Vin. ferri citr.....	1 to 4 fl. dr.....	4 to 15 C. C.
Vin. ipecac.....	{ Expect., 5 to 40 min.....	0.30 to 2.50 C. C.
	{ Emetic, 3 to 6 fl. dr.....	12 to 25 C. C.
Vin. opii.....	10 to 40 min.....	0.50 to 3 C. C.
Vin. quiniæ.....	$\frac{1}{2}$ to 1 fl. oz.....	15 to 30 C. C.
Vin. rhei.....	1 to 2 fl. dr.....	4 to 8 C. C.
Vin. tabaci.....	10 to 40 min.....	0.50 to 3 C. C.
Zinci acet.....	1 to 2 gr.....	0.05 to 0.10 gm.
Zinci carb.....	2 to 10 gr.....	0.10 to 0.60 gm.
Zinci chlorid.....	$\frac{1}{2}$ to 2 gr.....	0.03 to 0.10 gm.
Zinci oxid.....	2 to 10 gr.....	0.10 to 0.60 gm.
Zinci sulph.....	{ Tonic, 1 to 2 gr.....	0.05 to 0.10 gm.
	{ Emetic, 10 to 30 gr.....	0.50 to 2 gm.
Zinci valer.....	1 to 6 gr.....	0.05 to 0.40 gm.
Zingiber.....	10 to 20 gr.....	0.50 to 1.30 gm.

NOTE.—It will be seen that the doses as given in Metric terms, in the foregoing table, are not the exact equivalents of the doses given in Apothecaries' Weights and Measures, nor are they in all cases the equivalents arrived at by the rules given in the preceding pages; but the differences are insignificant and on the safe side—one object aimed at being to avoid complex fractions.

PHYSICAL EXAMINATION OF SEAMEN.

10 М Н

PHYSICAL EXAMINATION OF SEAMEN.

BY P. H. BAILLIACHE,

Surgeon United States Marine-Hospital Service.

It would seem that, as the safety to life and the security of property depend in great measure upon the physical condition of those who man our Merchant Marine, some provision should be made for securing able-bodied and healthy crews for sea-going vessels. Particularly is this evident when it is remembered that a diseased or disabled seaman cannot be replaced in mid-ocean by a sound one, and that the loss of one man's service at a critical moment may seal the fate of vessel, cargo, and crew. The Navy, the Marine Corps, and the Life Saving Service recognize the absolute necessity of such examination and enforce it accordingly.

Those who have witnessed the deplorable physical condition of many of our common sailors who apply for treatment in hospital, have long felt the necessity of some provision of law by which the reshipment of such men could be prevented. Notably, Dr. JOHN PATTERSON, of the English Service, (British Seaman's Hospital, Constantinople,) and Dr. C. HENRY KING, of the Seamen's Retreat Hospital, (Staten Island, N. Y.,) have written and worked earnestly in this direction.

The Supervising Surgeon-General of the United States Marine-Hospital Service, in his second annual report, (1873,) says :

"While the Service, under the operation of the present act, gives promise of eventually becoming self-sustaining, the percentage of relief made necessary by causes which are, in a large measure, avoidable, is so great as to materially retard this desideratum. Aside from cases of such purely preventable diseases as small-pox, syphilis, scurvy, &c., it is at least worthy of consideration how far a medical inspection of seamen before shipping would operate to reduce the cost of the Service by eliminating a class of patients who alternate between the hospital and the fore-castle, with a decided preponderance toward the former.

"The attention of the Supervising Surgeon was attracted during his earliest inspections of hospital patients by the numbers among them who, obviously, had never been fit for the duties, the exposure, the hardships, and privations of a sea-faring life. That such cases must prove an unjustifiable burden upon the marine-hospital fund, was an inference which has been abundantly sustained by subsequent experience.

"A wider view of this subject of the 'unseaworthiness of sailors,' shows the above, however, to be a minor evil as compared with the loss of life from shipwreck, due, as is alleged, among other causes, to the

physical incompetency of the crews. In the discussion following Mr. Plimsoll's agitation of this subject of frequent shipwreck, the *London Lancet* asserted that ten per cent. of all the men who ship are physically unfit for duty; while Captain Williams, in testifying as to the causes which led to the loss of the *Atlantic*, stated that 'ten good seamen out of forty' would be an unusually sound crew. The English law providing for a medical examination of seamen, is, according to a recent report of the Board of Trade to Parliament, practically a dead letter, because the provision is merely declaratory—the 'examination can be made, provided the owner and the men agree to it, and the owner pays for it.'

"In view of the revival of American shipping, and of the fact already presented, viz., of an avoidable burden upon the Marine-Hospital Service, the suggestion is respectfully offered for consideration whether it may not yet be found advisable to forbid, by statute, hospital-relief at the expense of the fund in any case where it is evident that the applicant was physically unfit for sea-life when he shipped. This would make a medical examination, before shipping, a matter of course; and in order to avoid the miscarriage of the measure, it is further suggested that the medical officers of the Service might be employed to make such examination without charge either to owner or men."

Dr. KING, above referred to, in a paper entitled "Unseaworthy Sailors," contributed to the third annual report of the Supervising Surgeon-General, (1874,) says:

"After three years' experience and observation in charge of a hospital where none but sailors are admitted, the writer, in his annual report of the institution for the year 1872, made substantially the following remarks concerning the physical condition of the patients under his care: Many of these men present evidences of utter unfitness for sea-life, and inquiry reveals the fact that sailors are often shipped suffering from consumption, syphilis, and other diseases at the time of their enrolment. Much suffering to the men, inconvenience to their captains, and, possibly, shipwreck and loss of life, might be avoided if more care were exercised in selecting a ship's crew. In not unfrequent instances a ship leaves port and has accomplished but a few miles of her voyage when it is discovered that a portion of the crew are laboring under disease which renders them unfit for duty, deprives the ship of their services, increases the labor of those who are well, causing discontent if not insubordination, and occasioning expense to the vessel as soon as she arrives in port. Nor does it cease here. The men are placed in hospital; the vessel is again ready for sea, but they are not. The captain is obliged to pay them off, leave them behind, and ship others to have the same thing repeated. * * * There is nothing to prevent one who has just completed his eight months' treatment for some incurable disease from reshipping direct from the hospital, which he frequently does, provided he is barely able to stand up; if not, he is sometimes gotten drunk, carried aboard and 'dumped' into the fore-castle, the captain being informed that he is a good man, 'only a little drunk.'"

Dr. PATTERSON, (previously referred to,) in his report to the Board of

Trade, (London,) on the condition of the Hospital under his charge, (1872,) says:

“I would call the attention of Her Majesty’s government to what I deem a subject of sufficient importance to include in this report, viz., the broken-down condition in which men arrive at the port of Constantinople. * * * Men are landed at hospital, suffering from severe forms of chronic disease and broken-down constitutions. The majority are shipped in a diseased state, and many of them barely reach Constantinople alive. Cases of foul chronic ulcers, constitutional syphilis in every form, chronic skin-diseases, old and broken-down drunkards, men far advanced in consumption, and old men far beyond the period of active service, seem to be indiscriminately shipped.”

This matter was presented to the British Parliament, by the Board of Trade, as follows:

“One point very strongly urged on our notice, at some ports, is the necessity for instituting a medical examination of seamen before they are shipped for the voyage. * * * As the State pays very large sums for the medical and hospital expenses of distressed British seamen abroad, and for their maintenance and conveyance home, the State, merely in the interest of economic expenditure, might properly insist on a medical examination of seamen.^a

“The proposition fairly open for consideration is, should not the ship-owner always be called on and required to pay for diseased sailors left abroad, unless he shows that he took the proper and necessary precautions to have his seamen examined medically before leaving the United Kingdom.”

The recent investigation of the subject of “unseaworthy ships,” by the Royal Commission, (London, 1874,) brought out further evidence of the necessity for physical examination of seamen before shipment, many of the members of the commission taking strong ground upon this subject:

Mr. THOMAS GRAY, the Assistant Secretary of the Board of Trade, in speaking of unseaworthy vessels, said: “Defect of hull, equipments, or machinery, and overloading, are the two chief grounds of all complaints, but bad sailors more than bad ships are the cause of losses.”

Mr. GEORGE L. MUNROE said that “all men not examined should be entered as ‘landsmen,’ and that every ‘seaman’ should pass a medical examination and have a certificate to show; such examination to be insisted on before a seaman is permitted to sign articles.”

Mr. MUNROE instanced “ships with crews of twenty men, five or six of whom, on an average, were laid up with venereal disease within a week after starting.”

Mr. JOHN GLOVE stated that “drunkenness at starting caused much

^a For the same reason the United States might properly insist on a medical examination of seamen, the amount annually appropriated by Congress for similar purposes being about \$100,000. P. H. B.

loss"—the sailors who were reported to be "only a little drunk" turning out to be worthless when sober.

Mr. THOMAS S. MILLER believed that "crews may be unseaworthy as well as ships—such persons shipping as able seamen to the great danger of all parties."

Dr. HARRY LEACH, medical officer of health for the port of London, says in his half-yearly report, (1875:)

"It will be seen by reference to Appendix (A) that a total of two hundred and three sick men have been found afloat in the port by your officers during the past six months, and the diseases from which these men were suffering tended to confirm an opinion that I formed some eight or nine years ago, as to the expediency of adopting for the mercantile marine a modified, but in certain cases a compulsory, medical examination of the men about to be employed. Such an examination has always been the rule in the Army, Navy, India Department, in the Emigration Service, and in most cases in the Civil Service, and were no other reason assigned for its necessity, the fact that, on the sea, when a man fails, there is no one to supply his place, should be all-sufficient. Observations gleaned from ship-owners, shipmasters, and others in the United States as well as the United Kingdom, go to prove that very few ships ever sail from a home or a colonial port with sound and healthy crews. Men frequently knock up before they have been a week at sea, do little or no work during the entire passage, give additional labor to the rest of the watch, take money from the owners that they have not earned, and are eventually sent home by the Board of Trade at the expense of the rate-payers. These expenses at the present time amount to more than £30,000 annually."

On the strength of testimony similar to the foregoing, and with the view of making the Mercantile Marine Service more efficient, members of the British Parliament, in proposing measures for the relief of sick and disabled seamen, while taking the Marine-Hospital Service of this country as a guide, determined to improve upon it by adding a clause to their law providing for the physical examination of seamen, as follows:

"3. "The medical inspection of all seamen about to go to sea shall be compulsory, and such inspection shall take place prior to and upon each occasion of signing articles. Such inspection shall be made by medical officers to be appointed as hereinafter provided, or by such as are already appointed by the Board of Trade. A certificate of such inspection shall be given by the medical officer to each seaman so inspected, in the form set out in Schedule I, and a register of the same kept by such officer. No such certificate shall bear date more than *seven* days prior to a seaman offering himself for service, but to avoid unnecessary delay or detention of a ship in case of any unforeseen accident, or circumstances affecting the numerical strength of his crew, the captain shall be at liberty to replace any one or more of such crew by

a A bill to provide for the organization of a Mercantile-Marine Hospital Service, and the medical examination of seamen. Prepared and brought in by Captain Pym and Mr. Wheelhouse, February, 1877.

such seamen as may be in possession of a medical officer's certificate; provided, that in all such cases the certificate shall be countersigned by the medical officer of the port from which the vessel sails, or if there be no such officer appointed at such port or place, then by such local medical practitioner as may be appointed for that office."

The advantages of a physical examination of seamen are manifold: It is a protection to the seaman himself—*a*, by preventing the shipment of a sick or disabled man who might otherwise endanger the life of his shipmates; *b*, by the constant scrutiny of his physical condition, thereby fostering his health; *c*, by guarding against a short-handed crew, which would impose extra labor on the able-bodied; *d*, by weeding out the chronic frequenters of hospitals and devoting the fund to those who deserve its benefits; *e*, by raising the standard of crews, men would be more careful of their health and habits if they knew they were subject to constant medical inspection.

It is a protection to the passenger and to the owner of the vessel—*a*, by insuring, in time of danger, efficiency of the crew; *b*, by preventing the development of contagious diseases (venereal, &c.) on ship-board; *c*, by giving to the owner value received for wages paid.

Protection to ship and cargo necessarily follow, and, as a result, the merchant can obtain cheaper insurance, the owner secure a better and more certain return for his outlay, and the master leave port with no dead weight to carry nor fear of extra bills to pay at the end of his voyage.

Protection to the seaman, to the passenger, owner, vessel, and cargo, are not the only legitimate results of such examination. The public health will be promoted by this means and a considerable reduction in the death rate will necessarily follow.

The writer, while upon a recent visit to several of the lately-established life-saving stations on the Atlantic coast, (accompanying an examining board,) found, at one station, out of seven men, two who were suffering with color-blindness, and at another station one man suffering with the same defect. Physically these men appeared to be perfectly sound, yet they were unable to distinguish a "danger" signal (red) from any other color, and would have probably deceived any but a medical man. Of course they were rejected.

At the port of Baltimore, out of a total of forty-four seamen in hospital at the time this paper was prepared, no less than fifteen of that number were permanently disabled and unfit for further service, and quite one-half of this fifteen belonged to that "class of patients who alternate between the hospital and the fore-castle, with a decided preponderance toward the latter."

In this connection, the following timely order, recently issued from the office of the Supervising Surgeon-General, will be fully appreciated:

“It is desirable, in the interest of the contributors to the marine-hospital fund, to ascertain, as far as practicable, to what extent the ability of the Service to support itself without the aid of the Government is affected by the demands upon it for the relief of persons physically unfit to follow the avocation of seamen.

“In issuing a medical-relief certificate on blank Form 6, you are therefore hereby instructed, in the event the applicant be found, in your opinion, physically unfit for service as a seaman, to state his unseaworthiness, as ascertained by your examination into his condition, by adding to your certificate the words ‘never fit for service,’ or ‘unfit for further service,’ as the case may be, qualifying the statement, if requisite, by prefixing the word ‘probably.’”

Evidence is not wanting to prove that ten per cent. is a small estimate of the actual loss of life by shipwreck, due to the physical disability of seamen; while the loss to owners of vessels by shipwreck, by delays, and by wages paid for services not rendered, amount to about double that percentage from the same cause.

Now that we have reached that era when it is more commendable to prevent disease than to cure it, why should not the same principle apply in providing for “the safety of ships and those who travel in them?”

Let us suppose two vessels loaded with freight and passengers leaving New York harbor bound to Liverpool; each has the same tonnage and each numbers the same crew; but the sailors on one of these vessels have all been examined by the Marine-Hospital Surgeon of that port, who vouches for the health and physical condition of the men. The other vessel has an averaged picked-up crew, such as daily ship from that port. In which of these two vessels will you ship your merchandise or trust your own life? In which can you have your goods insured at lowest figures? In which can the crew most reasonably be depended upon in case of storm or accident?

Everything can be said in favor of physical examination, and but one (apparently reasonable) objection raised against it. This objection refers to the practical working of the measure, and at first sight seems to be insurmountable, viz: The physical examination of seamen will greatly decrease the number of available men, already far too few to man our ships. This difficulty is constantly increasing for the reason that we are making no seamen; seventy-five per cent. of our sea-going vessels are manned by foreign crews. The fault of this lies with the masters of vessels, the remedy with the Government; or, more properly, perhaps, both the fault and the remedy lie with the Government, for had there been a clause inserted in the shipping act of 1874, (section 4509 or 4510,) *requiring masters of vessels to employ apprentices*, and a

further clause *protecting the masters against the desertion of such apprentices,*^a our merchant-marine, like that of other countries, would now be a growing instead of a decaying one.

With the adoption of this, or some other means for the increase of American seamen, the only objection to physical examination falls, and all that can be said in its favor stands unchallenged.

No expense to the Government, to the seaman, or to the vessel attaches to this measure. The machinery for its economic and successful management already exists. The Marine-Hospital Service, through its medical officers, can readily assume and perform all the duties required in making such examination, and furnish medical certificates at every port in the United States where seamen can be shipped by a commissioner or his deputy, as well as at many ports where there is neither commissioner nor deputy.

Then, as a preliminary to shipment, all seamen would be required to produce before a shipping commissioner (or if there be no shipping commissioner, then before the collector of customs or the master or owner of the vessel) a certificate of examination signed by a surgeon of the Marine-Hospital Service (or other authorized medical officer) showing that he is able-bodied, free from disease, and fit for duty as a seaman—no master of a vessel to accept, under penalty of a fine and the expense of caring for such seaman, any applicant for service who cannot produce a medical certificate bearing date not more than seven days prior to his application. Such certificate should so completely describe the applicant as to prevent the possibility of its sale or transfer to any other seaman, and a copy of the same should be retained by the surgeon for obvious reasons.

The physical examination of seamen arriving in vessels from foreign ports should also be required, (and there is no reason why it may not at once be enforced,) in order to prevent the introduction of disease from abroad, whether epidemic or contagious. Such examinations could be made by the quarantine surgeon, or in his absence by a surgeon of the Marine-Hospital Service. All seamen suffering with disease of any character should be transferred to hospital and not turned loose upon the community.

MARINE-HOSPITAL OFFICE,
Baltimore, Md.

^a Boys are not employed on our merchant vessels at the present time, for the reason that they are found to be so unsteady and independent that masters of vessels are glad to get rid of them after a brief experience on the high seas.

RIVER EXPOSURE AND ITS EFFECTS UPON
THE LUNGS.

RIVER EXPOSURE AND ITS EFFECTS UPON THE LUNGS.

BY WALTER WYMAN,
Surgeon United States Marine-Hospital Service.

That certain occupations tend more than others to develop disease of the lungs, the literature of pulmonary troubles gives ample testimony, and much interest attaches to the investigations which have been made concerning the health of certain artisans, such as needle-grinders, stone-masons, cotton and wool-carders, and others, who by their occupation are compelled to inhale irritating substances. Indeed so common is pulmonary degeneration among this class, that a special term—"Grinder's Phthisis"—has been applied to their malady.

But other occupations, operating in a different manner, may be equally injurious, and, in particular, those which require a sudden cooling of the body after its subjection to intense heat. To such sudden change of corporal temperature, certain classes of river-men are habitually subjected, and, as a direct result, so frequently present evidence of pulmonary decay that with equal propriety a specific term—"River Phthisis"—might be employed to designate their malady.

The classes of river-men referred to are, first, the bakers, who incautiously step from beside a heated stove into a cold draught sweeping across the upper deck; second, the engineers, who are called from warm positions by the machinery to more exposed places; third, the firemen; and fourth, the rousters. It is particularly of the two last that this paper will treat.

No class of men in the world are more subject to a sudden chilling of the body, when overheated, than are the firemen upon western rivers; and such is the arrangement of the furnaces and the space wherein the men are compelled to work that this seems almost unavoidable.

The furnace of a river-boat occupies generally the central portion of the lower deck, its doors looking toward the bow. On either side there is simply the open guard, with no intervening screen or partition, while directly in front is the coal-bin encroaching so closely as to leave a space not more than two or three feet in width. Within this narrow space the men must work, and it is easy to see that their violent muscular exertion, while "firing up," in connection with their enforced proximity

to the fire, must quickly engender great bodily heat and profuse perspiration. It is their almost invariable custom, after having filled their furnaces, and while thus warm and wet with perspiration, to step at once into the cold breeze upon the open deck and cool off as rapidly as possible, even bathing the face and chest in ice-cold water should any be at hand. The effect of this, even in the summer months, must be injurious, but in the fall and winter months, when the days are often intensely cold, when the thermometer ranges below freezing point, and the piercing wind has full sweep along the river course, could anything to the medical mind seem more suicidal! Perspiration is checked, the hot surface suddenly becomes cooled, and engorgement of the internal organs, with any of its many consequences, may follow.

That pleurisies, pneumonias, chronic pneumonias, or Viemeyer's phthisis do follow will be shown further on.

There is a second element of danger in the work of firemen, caused by the arrangement of the furnace and its appurtenances. While the boat is in motion, should its course and that of the wind be parallel, the men are protected while at work by the coal-bin in front and the furnace behind; but when the wind chances to blow across the deck, at right angles with the vessel's course, there is nothing to prevent their feeling it in its full intensity. Accordingly it is a common experience among them, while working, to suffer with great heat in the face, chest, and anterior portion of the body, at the same time experiencing a sensation of great cold upon the back—"melting in front and freezing behind," as one of them expressed it.

A third source of danger, lies in the process of cleaning out the cinders or "clinkers" as they are called. These must either be removed directly through the furnace-doors, or must first be poked out from between the grate-bars, made to drop into a pan below, and then be scraped into the receiving-pan. So hot are they, and so narrow the space into which they are scraped, that cold water must be poured upon them as they are being removed. The steam thus generated and the various gases the men are obliged to inhale are scarcely endurable, and, in addition, the same cooling process as that mentioned above is resorted to when they become so warm that they can stand the heat no longer.

But perhaps the most injurious kind of work done by firemen, consists in cleaning out the boilers. Such is the composition of the water of the Mississippi, that, in the formation of steam, large crusts known technically as "scales" are formed upon the sides of the boiler, failure to remove which will cause holes to be burned through at each point of such deposit. The frequency with which this cleaning must be done

varies upon different boats, but perhaps once in every two weeks would be a fair average. Boats which are frequently in large ports may have their boilers cleaned by men who make it a special business, but upon long trips the work is allotted to the firemen.

The *modus operandi* consists simply in entering the cooled boiler and scraping off the scales with a rough tool. A Mississippi steamboat while making a trip is under very heavy daily expense; time is actually money; and when, as is sometimes the case, a stoppage is made necessary, simply that the boilers may be cleaned, it is quite an object that the work should be done as quickly as possible. Accordingly the firemen are induced to enter before the temperature has been sufficiently reduced to make it prudent. Sometimes, to hasten the cooling of the boiler, repeated filling with cold water is resorted to, and just after one of these "wash-outs," while the temperature is comparatively and for the moment cool, the worker enters, and, though the heat soon returns with great intensity, he feels its influence so gradually that he is finally enabled to work in an atmosphere so hot that he could not otherwise endure it. The spectacle, then, is frequently presented upon our river-boats of one or more men working within a boiler which those outside could not enter. It is not done, however, with impunity, and many a fireman has been taken from the boiler in an insensible condition and laid upon the open deck to revive. This is no exaggeration, but a simple fact to which most every river-man of much experience can testify. Would it not be a matter of surprise should such over-heating followed by sudden chilling not produce disease? How often other organs than the lungs become affected is a subject for future investigation, but that pulmonary disease among these men is very common, the following brief considerations will show:

The attention of the writer was first directed to this subject by noticing that a large proportion of the subjects of lung disease, treated in the marine hospital at St. Louis, were firemen by occupation, and, with a view to ascertaining further knowledge upon the subject, an investigation of firemen on active duty was commenced, visits being made from day to day upon the various boats, the men drawn aside from their work, questioned concerning their general health and made to give an accurate account of all previous attacks of sickness. At first, auscultation and percussion of the chest was also attempted with a view to ascertaining the actual present condition of the lungs, but, while this was very desirable, it was soon found to be impracticable, on account of the surrounding noise and confusion. The firemen are to be found on the boat only just before its departure, and the majority

of them could not be spared from their work to accompany the examiner to a quiet room where a physical exploration could be made with accuracy. The oral examination, however, was quite satisfactory and decisive in its result. Out of forty firemen taken at random, with no effort to select the unhealthy ones, only ten were found who had not contracted pneumonia or pleurisy, or who had not been affected with hæmoptysis during the period in which they had pursued their avocation. Of the thirty who had been thus affected, quite a number complained of existing respiratory trouble, and the history of some of them embraced repeated attacks of pleurisy and pneumonia, which all, without exception, attributed to the overheating and subsequent exposure forced upon them by their occupation.

In considering this large proportion of firemen affected with pulmonary trouble, one or two facts are worthy of consideration, which add significance to the statistics and warrant a belief that a more extended examination would cause the percentage to be no lower.

First may be mentioned the fact that firemen, as a class, are a picked set of men, naturally robust and of strong constitution. They form a distinct class. Not every man can act as fireman any more than every man could act as pilot or clerk. Practice is required to make them efficient, and, above all, strength and endurance. Knowing this, weak or unhealthy men seek other kinds of labor. To find a marvel of physical health, a type of muscular development, one should seek a river-fireman who from ten to twenty years has pursued his calling without a day of sickness, who gives not a single sign or symptom of organic disease, and complains not of a single ache or pain. Such there are, and such were some of the men met in the course of the writer's examination. But there are exceptions. As a rule the iron constitution gives way, however strong at first, and nature's broken laws react upon the strong as surely as upon the weak.

Another fact bearing upon the statistics is, that they were taken in the month of December, when many firemen, presumably those with "weak" lungs, seek occupation upon the lower rivers to avoid the rigor of a colder climate. One fireman mentioned to the writer the names of six others absent from port whom he personally knew to be affected with lung complaint.

Again, it is a fact worthy of note that many firemen suffer from pneumonia (circumscribed) and pleurisy, and continue to work while the disease runs its course. Many have spoken of having at certain times experienced pain in the side, increased on inspiration, accompanied by "inward fever" as they call it, and heavy cough with rusty expectora-

tion, stating that they would gladly have given up work had there been a comfortable place to which they might resort; but the boat being "*en voyage*," no hospital or physician accessible, they have continued to work until the symptoms disappeared. Of course they recognize no disease, do not so much as call it sickness, reserving that term for attacks by which they are compelled to take to their beds.

It appears, then, that firing upon a western steamboat is an unhealthy occupation. The practical question now arises, can anything be done to make it less injurious? And in order to a proper answer to this question, each of the several forms of labor above enumerated must be separately considered.

First, the cooling off in a draught while perspiring. Could these men be informed of the danger in this procedure, and be persuaded to throw around them while resting an extra garment, the danger would be lessened; lessened *only*, however—not removed—for such is the construction of the boiler-deck, that *nolens volens* they must remain in the cold breeze, every shelter to which they might resort being too remote from their place of labor. An efficient and inexpensive remedy for this would be the erection on each side of the coal-bin of a small shelter, not more than three or four feet square, six or seven feet in height, with glass windows at the top, into which the men might step and cool off gradually. In mild weather these would probably not be used at all, but in cold weather, and especially upon windy and rainy days, they would be appreciated by the hardiest men and prevent many attacks of disease.

The second element of danger—viz., chilling of the body while at work—must perhaps be considered as non-preventable; every suggestion as to its remedy seeming impracticable. But with regard to the third source of injury—viz., the labor of scraping out the clinkers, with its accompanying inhalation of steam and gases—something surely could be done. It is a matter of surprise that this crude, laborious, and primitive method of cleaning out the ashes has not long since given place to some mechanical contrivance by which it could be more quickly and as effectively done. Probably manufacturers of furnaces have never given the matter serious consideration; but could they be brought to see the necessity of some such invention, mechanical ingenuity would not be wanting to accomplish it. Considerable attention has, indeed, been given to such a construction of boilers and furnaces as will lead to a smaller consumption of fuel, and a successful effort in this direction would probably also result in a saving of the firemen.

While clearing out the clinkers the furnace-doors must be kept open, and heat escapes which should be utilized for steam. To avoid this

necessity, it has been suggested that the grate-bars be upon the revolving plan, after the manner of certain stoves, all the grates to be worked by a common lever at the side.

Could this be done, and a plan also devised by which the clinkers would slide off into a proper receptacle, many a fireman would be saved a condition of body known among them by the very expressive term "burned out," and for this reason alone it would be proper to make the adoption of such an invention obligatory.

Some effort has also been made to prevent the formation of "scales" within the boilers, the work of removing which has been shown to be so injurious, but thus far to no avail. Whether their prevention will ever be accomplished is a question, but until it is, a law should be in force requiring a certain length of time to intervene between the dying out of the fire and entrance into the boilers, or forbidding such entrance until the temperature be reduced to a certain degree. The firemen themselves would be the best executors of such a law.

Next to the firemen the roustabouts suffer more than any other class from river-exposure. Were it properly within the limits of this paper, it might be of interest to present a short sketch of the character of the rouster, to describe his mode of life, his harsh usage, his ignorance, his recklessness of all kinds of disease, and to mention many facts concerning a class of men whose condition needs amelioration, but who seem to have escaped the notice of public sanitarians and social scientists. But this paper will simply treat of his exposure, due to poor accommodations, or, more strictly speaking, to no accommodations at all.

There is a marked contrast presented between the cause of disease in Jack upon the ocean and the rouster upon the river, corresponding to the difference in structure of the vessels upon which they work. As shown by the article of Surgeon Hebersmith, in the Supervising Surgeon's report for 1874, the ocean-sailor suffers materially on long voyages from the effect of confined, damp, and filthy quarters. The rouster, however, suffers from having no quarters at all. The one lacks fresh air, the other has too much of it.

Most readers are familiar with the structure of western boats, and need not be reminded of the openness of the boiler-deck on which the rouster is expected to rough it, finding whatever shelter he can among the freight. When this is abundant there may be no suffering, but when there is a light load, and a sudden change of temperature occurs such as is very common in this climate, his exposure is great.

Of late years, however, an improvement has been made on many of the side-wheel steamers, in the shape of bulkheads thrown across the

deck just aft of the boilers. This has been done not so much with an idea of making a warmer place for the rouster, but for the protection of freight and of the large steam-pipes in which the steam would otherwise become condensed by contact with cold air, causing a greater consumption of fuel. Incidentally, however, the rousters have been benefited by this bulkheading, and when the boat is under way the large steam-pipes in the enclosed portion of the deck make a resting place sufficiently comfortable. These bulkheads, however, are unfortunately found only on the side-wheel steamers; stern-wheelers do not possess them, and the majority of boats on the Mississippi are stern-wheelers; out of a total of one hundred and forty-nine steamers registered at St. Louis, ninety-five being of that description.

There is no good reason why there should not be special accommodations upon all river-boats for the rouster. At the very best his life is one of too much exposure. His hours of sleep are uncertain. At any time of night he may be called upon to ship or unload freight, and be the weather warm or cold, wet or dry, it is supposed to make no difference to him. Often, in making a landing, is he compelled to jump into water waist deep and with rope in hand to wade to shore to make fast the boat. And this may be his duty when the water is warm or when filled with floating ice. Several cases of sickness from this cause alone, have been treated in the marine hospital at St. Louis within the last year.

Should a boat be "stuck" upon a sand-bar, it is the rouster who must labor day and night until it is once more clear. So shifting is the bottom of the Mississippi that when a boat becomes thus fast, the sand begins at once to accumulate around the lower end, which soon becomes deeply imbedded. Of course, then, it is an object on this account, as well as others, to shove off as soon as possible, and work known as "sparring" is continued night and day until successful. This work consists, briefly, in poling off the boat by means of long, heavy spars, operated both by machinery and hand-labor, and, as may be imagined, is severe and frequently of two or three days' continuance. During this time the rouster has no rest except at odd moments when he can slip away, his absence often being only winked at, not allowed by the mate.

After such labor, often performed in a cold, driving rain, should there not be some provision made for a comfortable rest? At a slight expense, and with but little encroachment upon the freight-room, respectable quarters could be erected. As a consequence, the health of the rouster would be better and his services more valuable. The effect upon himself would be excellent, for, being treated with more consid-

eration, his self-respect would increase, and with it an effort be made to improve his own condition.

No class of men is more in need of the exertions of the philanthropist than are these rousters, especially the colored rousters. It is a matter of observation that since its emancipation the negro race has steadily degenerated and is rapidly dying out, as the direct result of its own depravity and excesses. The colored rousters represent the lowest element of the negro race. Should not something be done for them? The Marine-Hospital Service takes care of them when sick, and an excellent charity, the Bethel Association, labors among them with Christian influence. But something more is needed. There is a want which can only be supplied by their employers—attention to their proper food and shelter. Steamboat-owners and officers on western rivers are noted for their liberality and kindness of heart, and that no move has ever been made toward improving the condition of these poor laborers must be attributed to mere inadvertence. So accustomed are they to seeing the present condition of the rouster that the idea of changing it has probably never seriously engaged their attention. Moreover, the rouster, by his very nature and habits, seems to demand harsh treatment. Mild treatment would make him insolent. An order given in a pleasant tone he would scarcely understand, and would be extremely slow to obey. But severity of manner and severity of exposure are two different matters, and while one may be necessary, the other is inexcusable.

It cannot be denied that here and there is a boat on which good shelter is provided and wholesome food furnished in abundance. But such boats are exceptions, not affecting the general rule. The fact is undisputed that the river-roustabout leads a life of unparalleled hardship.

That some effort should be made to better his condition is seen in the fact that this class, already large in numbers, must soon increase. River-navigation has probably been at its lowest ebb, and, under the combined influences of the jetties at the mouth of the Mississippi, the permanent five-foot channel from St. Paul to the Gulf, the probability of an interchange of commodities between the Mississippi valley and the South American Republics, river commerce must increase. More boats may be built, more rousters employed, and, whatever improvements or changes may be made in the construction of vessels, it certainly is to be hoped that more consideration will be shown for the proper protection of this laboring class.

UNITED STATES MARINE HOSPITAL,
St. Louis, Mo.

YELLOW FEVER AT SAVANNAH, GA., IN
1876.

YELLOW FEVER AT SAVANNAH, GA., IN 1876.

BY GEO. H. STONE,
Assistant Surgeon United States Marine-Hospital Service.

To the SUPERVISING SURGEON-GENERAL,
U. S. MARINE-HOSPITAL SERVICE.

In the consideration of the subject of yellow fever as observed by me in the epidemic at Savannah in 1876, it is proper to state that I commenced my observations impressed with the theory of its exotic origin, but that as the investigations progressed I was forced to take the opposite view.

Savannah is situated in latitude $32^{\circ} 5'$, longitude $81^{\circ} 5'$ west. It is twenty miles from the sea, on the Savannah river, and built upon the bluff nearest the ocean. The river front is about 7,600 feet in extent, the high land running back to the south about 7,300 feet, and then sloping toward a swamp. The city is flanked on the east and west by land formerly under rice culture, but now partially under dry culture.

The height of the wharf above low-water mark is ten feet; the height of the bluff immediately in rear of the wharf ranges from forty-two to forty-seven feet.

A wall has been built along the entire front from East Broad to West Broad street, between which and the wharf are rows of business-houses, which, to some extent, protect the city from the river malaria.

Lover's lane, where one of the first cases of yellow fever occurred, is a continuation of Anderson street, and forms the southern boundary of the city. It is chiefly settled by negroes, although a few white people reside there, principally truck-farmers.

Most of the lands between Lover's lane and the Thunderbolt road are not under culture. Between the Thunderbolt road and the river the lands are under both wet and dry culture. The lands to the west of the city are under dry culture. The offal of the city has been deposited at different times on both flanks of the city, as shown on the map. Previous to the epidemic, on the west side, close to the city-gates, a mass of animal and vegetable debris had been left to slowly decompose.

The system of drainage at present in use is far from perfect. The contents of the sewers find outlets in the river at West Broad, Whitaker, and West Boundary streets; the main sewer, however, running to the northeastern portion of the city and finding an outlet into Bilbo

canal, an open drain which in its turn, after crossing the eastern low land, empties its accumulated filth into the river at a point about 700 yards to the east of the inhabited portion of the city. I am free to say that the sewers were in no worse condition than I have seen them in other seasons. Bilbo canal, however, which depends upon a tide-flushing to keep it free from filth, had been flushed but six times during the season. This was due to the fact that in times past the proprietors of lands adjoining the canal had demanded damages for overflows from these tide-flushings, and the city authorities had become over-cautious.

When no sewer-connection existed the contents of privies were hauled to and dumped in a pit in the lane and covered up; the escapes of water-closets and privies are into dry wells. Year after year, for one full century, the contents of the privy-vaults have been disposed of in that manner, until the soil in some localities is saturated with the decomposing matter. Dr. J. J. WARING, in a communication to the city council, says: "The number of houses in Savannah is near five thousand, the number of water-closets is one thousand seven hundred and fifty-nine, and the number of privies or midden-vaults is three thousand three hundred and sixty-six; but the large majority of the water-closets connect with closed or sealed midden-vaults or dry-wells, connecting by the waste-pipes with the interior of houses."

In the streets and squares of the city are found the pumps from which a large portion of the inhabitants of the city derive (from choice) their supply of drinking-water, contaminated with animal products of decomposition. The regular city water supply is taken directly from the river, from a point to the west of the city, just below the wharf of the Central railroad. At this point the drainage from the valley of Hinnom, through the Springfield, the West Boundary, and Serwen sewers, as well as the Ogeechee and Springfield canals, is received into the river.

It has been held that the first case of yellow fever which occurred in the epidemic under consideration was that of G. W. Schull, whose history will be given hereafter, but Dr. J. B. REID, of this city, treated a case of yellow fever, with black vomit, on the 4th of June, in the person of a child of Mr. Dresser, living at 97 Jones street. (Dr. A. F. WOODHULL, United States Army, in his report to the War Department, states that Dr. REID did not believe this to be yellow fever. Dr. REID informs me that this is a misunderstanding. He now positively asserts it to have been yellow fever.) On the 16th of June he treated for yellow fever, with black vomit, Edward McGlowan, who resided on Liberty, between Jefferson and Montgomery streets. Both these cases recovered.

In the early part of June he saw a case of yellow fever in Lover's lane in the person of a colored child, which died. Thus we have the initial cases of the epidemic during the month of June and scattered widely apart; Lover's lane being the extension of Anderson street to the east, forming the southern boundary of the city, Jones street in the centre of the town, and Liberty, between Jefferson and Montgomery, to the centre and west of the city.

G. W. Schull had been on the American schooner "T. H. Sever" as steward for one year, during which time the "Sever" had not been out of the coasting-trade, and had in no way been exposed to yellow-fever poison. She arrived in Savannah from New York on the 10th of July, 1876, and after discharging her cargo, consisting of ice, on the 15th of July moved down to the wharves of the Atlantic and Gulf railroad, where she proceeded to take in a cargo of lumber. The "Sever" lay above all the other vessels at that wharf. Schull, who was perfectly well when the vessel arrived, had no intercourse with the Spanish vessels then at the wharf, and was not on shore.

Schull was taken sick on the 25th of July, was carried by boat to Indian street, corner of Ann, and remained there until July 28, when he was removed to the marine hospital, and thus came under my care. On the 30th day of July, while sitting up in bed calm and cheerful, the blood suddenly gushed from his mouth, and his death immediately followed.

The *post-mortem* in this case proved that the blood came from the lungs; the liver was of a complete boxwood color; the body was intensely yellow.

The original notes of this case, taken at the bedside on the 29th July, read as follows: "Temp. a. m. $99\frac{1}{2}$; pulse 96; resp. 30, short, catching; second sound of heart shortened; complexion yellow; skin jaundiced; iris of eye echymosed; epistaxis; tongue dry, coated in centre, and bleeding; cold sweats; slight pains in front of head; has had slight pains in back; some tenderness over the left hypochondriac; a blistered surface on the back was bleeding."

On the 6th day of August, Thomas Cleary, aged 15 years, was taken sick on Wright street. I saw this case a few days after he left his bed and remarked his jaundiced skin, and from his statements, confirmed by his parents, I believe that he had yellow fever.

About the same time, James McCarthy, a lad of 13 years, living on the east side of East Boundary street, two doors from its north end, had yellow fever, and was treated by Dr. REID.

August 15, Richard Grandison, aged 8 years, a mulatto boy residing on

the east side of Randolph street, the second door north of Liberty, was taken with yellow fever, threw up matter described as looking like coffee-grounds, and died on the night of the 18th.

Martha Hart's child, west side of Reynolds street, two doors north of Broughton, had black vomit August 18, but recovered.

August 19, Jno. Conners, aged 10½ years, living at 21 York street, between Price and Houston streets, had what is claimed as a mild case of yellow fever.

On the 21st day of August, I was called to see James Patrick Cleary, aged about 12 years, a brother of Thomas Cleary, in Wright street; I found him throwing up black vomit, and he died about two hours later.

From this date the fever cases multiplied so fast in this locality that soon the entire portion of the city known as the "Old Fort" was a scene of desolation and death.

Next we are to consider the Indian-street centre of infection. The seaman Schull, already referred to, left the northwest corner of Indian and Ann streets on the 28th of July. On the 17th of August, a child of Thomas Mayner, living on the northeast corner of Indian and Ann streets, across the street from the house in which Schull had been, was taken sick; and, from the testimony of Mrs. Mayner, I have no doubt this was a case of yellow fever. Mr. Mayner and two of the children died of the fever a little later.

David Coleman, who took Schull to the hospital in a carriage, had the fever about the 19th.

Dr. WOODHULL, in his report, follows out the course of the disease as it progressed up West Broad street to the Stone-street centre. Stone street, however, was infected already in June by the McGlowan case.

On the 28th and 29th of August, the Stone-street *foci* began to bear abundant fruit, and the infection circled around the three centres, until the whole city was enveloped. Fifteen thousand people were sick, and fifteen hundred had died before a heavy frost, on the 19th of November, stayed the scourge.

In a previous report I gave a complete list of vessels arriving at this port from yellow-fever ports.* I have earnestly endeavored to trace the origin of the disease to some of these vessels, but have, with others who have attempted the investigation, completely failed. This epidemic, to my mind, was not necessarily imported.

There have been several cases of the disease in Savannah this season, (1877,) and all but one on or near Jones street. These cases can-

*See page 182 for list of vessels from Cuban ports entered at the custom-house, Savannah, Ga., from January 1 to September 1, 1876.

not be traced to contagion from Fernandina or Port Royal. Most of them were located in houses having privies connecting either with dry-wells, or with private sewers leading into the city sewers. The private sewers are not reached by the regular flushings of the large sewers, and, consequently, are nearly as liable to retain effete material along their course as the dry-wells. It is possible that the poison may have remained inert through the winter, and then warmed into active existence by the summer heat. The east and west flanks of the city were thoroughly cleaned and disinfected with carbolic acid and lime last year, but the Jones-street locality, being the place of habitation of the well-to-do classes, was thought not to require a rigid enforcement of the disinfection process, and the matter was left to each individual household. The result is apparent. The east flank of the city or the Old Fort section, escaped without a case of the fever; the west flank, or Yamacran, escaped with but one case, while the Jones-street section had at least nine or ten cases. As strict hygienic measures are being instituted in that locality at the present time, I confidently believe there will be no return of the disease next year.

I am satisfied that the prevalence of yellow fever can be effectually checked by proper vigilance on the part of the health authorities. For years after the epidemic of 1854 the authorities of the city of Savannah were untiring in their efforts to maintain the city in a perfect hygienic condition, but as time passed exemption fostered neglect, hygienic measures almost entirely ceased, and the garbage and offal from the streets were deposited on the slopes of the Hinnom to filter into the source of the water supply.

I am under many obligations to Surgeons WOODHULL and McCLELLAN, of the United States Army, for their untiring zeal in pursuing with me the intricate and tedious details inseparably connected with an investigation of such a scourge as visited our city during last year.

OFFICE OF THE SURGEON-IN-CHARGE,

Savannah, Ga.

YELLOW FEVER AT SAVANNAH AND
BRUNSWICK, GA., IN 1876.

YELLOW FEVER AT SAVANNAH AND BRUNSWICK, GA., IN 1876.

BY HENRY SMITH,
Assistant Surgeon United States Marine-Hospital Service.

To the SUPERVISING SURGEON-GENERAL,
U. S. MARINE-HOSPITAL SERVICE:

Arriving at Savannah September 22, 1876, when the fever was at its height and the mortality greatest, I applied myself at once to the work of ascertaining the true condition and extent of the pestilence, together with the prevailing type and consequent mortality, and to render such medical assistance as lay in my power for the relief of the stricken inhabitants.

Having met with a cordial reception alike from physicians and citizens, I was afforded the usual facilities for investigation, making no delay in visiting the sick in the infected localities and in obtaining information from various sources. In this duty I continued for upwards of six weeks, until my departure, November 10.

Of the true character and type of the epidemic I was soon satisfied. Of its origin the task was not so easy. Especially was this the case in the absence, on my arrival, of any definite knowledge of facts connected with the introduction of the infection, and in the face, too, of conflicting opinions and theories, all at variance with my past experience. I believed from the first that further and full investigation might throw light on the obscurity of the origin of the disease. Evidence has since accumulated which goes to determine conclusively the fact of the importation of the infection, and to establish the truism that the late epidemic was no exception to a general rule now well understood and very generally adopted.

THE MATERIES MORBI.

Although the morbid element in yellow fever has not as yet been determined by our outward senses, observation points to the belief that it exists in living germs propagated without the body, but which can be studied only by their effects on the human organism. In illustration of this position the following facts may be cited:

1. *The disease is certainly transportable, through fomites, from an infected to a healthy and distant locality.*

2. *Individuals, alone and apart from fomites, fail to spread the disease in a healthy locality.*

3. *The disease is known to extend gradually from existing FOCI of infection, like the army-worm on cotton plantations.*

4. *Testimony has been for years accumulating to the conclusion that the disease may be arrested and extinguished in infected localities by the use of agents destructive to low forms of life.*

It may be here observed that on the last point proof has been amply made through the system of disinfection as practised for past years by the Board of Health of Louisiana.

The following are valuable, and probably represent the very latest theories regarding the action and propagation, under certain favoring conditions, of this most formidable of diseases:

1. That the poison is not of a gaseous nature, but attaches itself to the soil, to walls, and to exposed surfaces generally.

2. That the disease propagates from centres along surfaces equally in all directions, as often against currents of air as with them.

3. That the poison exists in the patient some time before development.

4. That the germs, whether animal or vegetable, must have existed in more or less force for an indefinite period preceding the moment at which the development of the disease takes place.

It has been also ascertained that yellow fever advances from local foci at the rate of about forty feet per day. As the disease, therefore, has a constant tendency to spread, the whole space over which it could have extended must be disinfected in order to check its advance from the point at which it had its origin. To determine the area over which disinfectants should be used, it is only necessary to add four to the number of days since the disease manifested itself, and multiply by forty—the rate per day at which the disease progresses from a given centre.

SANITARY CONDITION OF SAVANNAH.

On a broad peninsula, stretching along the southern bank of the Savannah river, stands Savannah, the Forest City of the South, about eighteen miles by the course of the river from the sea and fifty feet above its level. This elevated sandy plateau upon which the city rests is almost a level, with an area of some nine or ten miles each way; has the Savannah river on the north, the Ogeechee and Vernon rivers, with their tributaries, on the south; the St. Augustine creek and Vernon river on the east, with the great tide-water swamp, extending due south from the Ogeechee river, as a western limit. The city proper,

eligibly and beautifully located, fronts a little west of north on the river, Bay street extending nearly east and west from the gas-works on the east to the water-works on the west side of the city.

About the centre of the site of the city is formed a ride or back-bone, extending due south, upon which run the White-Bluff and Middle-Ground roads, furnishing a water-shed, from the slopes of which on either side all the waters are drained into the large swamps.

Laurel Grove cemetery is in the southwest corner; the Atlantic and Gulf railroad depot in the southeast corner; the Atlantic and Gulf wharf in the northeast, and the Central railroad wharf in the northwest.

Bilbo canal, into which the main city sewer empties, bounds the eastern side of the city, extending from the Atlantic and Gulf railroad wharf southward to the terminus of the main Boulton-street sewer.

On the east side of Bilbo canal begins the wet cultivation of rice on the Lawton plantation-and old "brick ponds," and south of these the "bone-yard," where dead animals from the city are left to decay.

On the west, near the Central railroad wharf, is the outlet of the West Boundary-street sewer, which empties its contents into the river near the Scriven sewer, draining a part of the Springfield plantation, where the offal of the city is deposited on sandy land. A great number of ships and steamers take in and discharge their cargoes here, the garbage from which, and the excrements from the crews of these vessels, together with some hundred of the employés of the railway, find their way into the river at a point immediately above where the water-works take their supply at half-ebb tide, the water passing into the reservoirs without filtering, except what is done in private houses. In this condition the water is probably less injurious than if supplied from wells in the soil composed of almost pure sand, where well-water would be contaminated with percolations through this very porous soil from privy-vaults and putrescent organic matters in solution, finding their way to the pumps.

The Atlantic and Gulf railroad wharf, situated at the northeast end of the city, as before stated, is surrounded by lowlands under dry culture. This wharf-landing is made up of ballast spread upon the river front, and is the designated point at which all vessels are compelled to discharge ballast, composed of sand, soft rock, and blue clay, from the vicinity of Havana, taken in by New York, Spanish, and other vessels frequenting that port. May not this circumstance alone sufficiently account for the origin of the late severe visitation?

For a period of nearly twenty years Savannah had been free from epidemics, and enjoyed the reputation of being one of the healthiest cities on the Atlantic coast.

While the sanitary condition of the city was not so bad as at first contended, it was found upon investigation to be exceedingly objectionable, and testimony points to the existence of several combined causes which played an important part in the type and virulence of the late epidemic and the consequent large mortality.

During the spring and early summer conditions seemed to favor the development of miasmatic diseases, and as the season advanced a regular malarial current existed, reaching from Brunswick, Ga., at the south, to Charleston, S. C., on the north, striking some places severely, others lightly, like the track of a tornado. The average temperature for the month of June was 80.56° F., the rain-fall nearly nineteen inches, and the total number of clear days fourteen.

For the month of July the mean temperature was 84.5° F.; rain-fall, 6.11 inches. The prevailing wind for both these months was southwest, and from over a malarious region. This marked heat continued throughout the month of August, during which the rain-fall was 6.88 inches; wind mostly from the south, but variable.

It will be noticed from the foregoing that there was during the month of June an immense rain-fall, followed in July and August by intense heat, so continuous that there seemed no respite.

The lowlands surrounding the city were undrained. The sewers, with large drainage capacity, had been neglected, with no arrangement for flushing to clear away their contents. Bilbo and other canals were in a foul condition and neglected. Drains were left to fill with accumulations of offal, and other obstructions to drainage were suffered to remain, causing them to become more offensive than during previous seasons, and complaints of bad odors were more numerous.

The privy-vaults are constructed so as to make it possible to transfer their contents to pits dug for the purpose, which are covered with earth and the deposits allowed to mingle with the soil. Many privies and water-closets are connected with what are termed "dry-wells," from which foul gases are evolved to taint the air with nightly exhalations. Another point may be taken into consideration. Since the war rice fields and plantations, drains, levees, and dams all along the southern coast have been allowed to go to ruin from want of cultivation. Drains were choked, levees broken, lands overflowed to saturation, dams not attended to, and the consequence of the extensive decomposition was one great stretch of malarial effluvia. With the dissemination of malarial germs, accumulating and concentrating, in addition to other favoring conditions as the summer advanced, it required but the single spark contained in a disease of pronounced malignancy for the most direful of consequences to ensue.

THE EPIDEMIC.

The spring and early part of summer seemed to have been healthy as usual. There was not a remarkable number of cases of the common fevers of the locality, nor did those cases which did occur appear to have been of a peculiarly severe type. The city was gay as usual; a good summer business was being done, and the general feeling cheerful and buoyant. However, as the summer advanced, the number of cases of fever began suddenly to increase and to assume a more severe character, not yielding to the usual modes of treatment. Then intelligence went the rounds that the attacks were quick and decisive and deaths very frequent, giving forebodings of malignancy not heretofore known or suspected. It was now found that the sickness had begun to spread. The doctors looked grave but kept reticent. It became known that people vomited an ominous black substance and died soon after, although the disease had not assumed a distinctive type nor developed its full strength. Then there were whispers of yellow fever, and towards the end of August the alarm spread, the news extending far and near. Persons began to leave the city, and a feeling of gloom pervaded all classes. A crisis was approaching, with an epidemic full upon the hapless community.

The month of September found places of business closed, streets deserted, and trade paralyzed. Of a population numbering ordinarily nearly thirty thousand, composed chiefly of unacclimated persons—citizens to the manor born, long residents, from other States of the Union and Europeans—upwards of 8,500 had fled, seeking safety in many places within the State and surrounding country. The city was quarantined against by all adjacent towns, and the telegraph was the only means of communication.

Although the first, in the person of Schull, a doubtful case, resulting in death, occurring on the 28th day of July; a second, in the person of Thomas Cleary, attacked August 6, probably yellow fever, terminating in recovery; a third, certainly of yellow fever, in the person of Patrick Cleary, aged 11 years, brother to the above, resulting in death on the 21st of August, with cases following in rapid succession, the disease was not sufficiently pronounced to be recognized as existing in epidemic form until the 29th of August, up to which time the physicians had not fully decided as to what course to pursue. Their deliberations seemed tardy. Their final judgment was that yellow fever did exist, and on that date it was publicly announced that the disease was epidemic. The Savannah Benevolent Association immediately organized and was fairly at work by the 1st of September. Appeals for help

were by this time made to the North and other places. The flow of benevolence soon began, and continued unabated in the most munificent manner until there was no longer need.

ORIGIN OF THE FEVER.

From the commencement of the epidemic there have been advanced various conflicting theories as to its origin, but nearly all point to the one source, namely, to the fact of its importation through the ordinary channels of commerce, and therefore of foreign introduction.

The Bilbo canal is by some considered to be the cause of the epidemic; the Springfield plantation is another place pointed out; then the Ogeechee canal, on the west limit of the city; then again Hutchinson's Island, opposite the city. All these places, being low and abounding in marshes, must necessarily be unhealthy, but it seems unwarrantable to suppose that Savannah, after being exempt for nearly twenty years from anything appertaining to an epidemic, the Bilbo canal, the Ogeechee river, the Springfield plantation, or Hutchinson's Island should, by some peculiar atmospheric action, unite in originating a frightful pestilence which has more than decimated the city—a theory not borne out by facts, and therefore wholly untenable. But rather attribute these conditions as factors entering largely into determining the type and extent of the disease with all its train of evil consequences.

It has been proven beyond question that the infection was conveyed by vessels to Brunswick, Ga., and Duboy Island, direct from Havana. The disease may likewise have been brought to Savannah, as alleged, by a Spanish brig, several sick sailors from which were said to have been surreptitiously taken from the vessel and brought to Dennis's sailor-boarding-house.

The fever first broke out in the northwestern portion of the city, on Wright street, near the gas-works, and along East Broad street, then taking a few intermediate points in the centre of the city, located itself about Simms street and West Broad street and streets adjoining in the northwestern part—both these points front on the river—working down Fahn, Indian, and Bay streets, and finally taking possession of the entire city, subsequently extending for miles out on the Thunderbolt road, White Bluff, and Isle of Hope road, Ogeechee and Louisville road, Tybee Island, on the sea-coast, and White Marsh, distant twenty miles, where there could be traced no communication with Savannah.

It is worthy of remark that in the vicinity of the gas-works, where the fever is said to have originated, the epidemic was of short duration, with comparatively small mortality. Bilbo canal, the Springfield plan-

tation, and other low lands, most exposed to malarial influences, appear to have been slightly affected, while it is matter of record that the best, most central, and most protected districts of the city experienced a more rapid spread of the disease, with greater virulence, and consequent greater mortality.

To prove positively the introduction of the disease into Savannah by importation, data may be incomplete, but evidence points conclusively to the inference that the recent epidemic was no exception to that of others occurring in different localities and in former years; but a confirmation that the yellow fever of 1876, which resulted so disastrously to life and commerce, had a foreign origin, and was not of spontaneous production or endemic.

YELLOW FEVER AT HAVANA.

To Mr. HALL, United States consul-general at Havana, we are indebted for the information that yellow fever (vomito) existed in Havana, several cases having been reported about the middle of May, and the disease continued to prevail during June, July, and August, until the middle of September. The number of cases reported in the different hospitals of that city during the month of June was 298, out of which there were 145 deaths. From this it will appear that the death ratio was a little less than fifty per cent.

The following are the number of cases of deaths by yellow fever during the three summer months:

June.....	291 deaths.
July.....	685 “
August.....	259 “

The number of deaths during the month of September was only ninety-seven.

The disease prevailed to a limited extent in other places on the island of Cuba, where yellow fever is regarded as endemic. The natives, (Cubans,) African, and Chinese races appearing to be almost if not quite exempt.

List of Vessels from Cuba entered at the Custom-house, Savannah, Ga., from January 1 to September 1, 1876.

Date.	Name and nativity.	From port of—	Number of tons.	Crew.	Cargo or ballast.
Jan. 3	Spanish bark Maria	Havana	320	15	Ballast.
Jan. 12	Spanish bark Raphael Pomar	do	415	15	do.
Jan. 12	Spanish brig Almogaver	do	255	12	do.
Jan. 19	American schooner Geo. Washington	Baracoa	73	5	Cargo.
Jan. 20	Spanish brig Ana	Santiago	221	13	Ballast.
Jan. 20	Spanish bark Neauvo Barraras	Havana	240	13	do.
Jan. 21	Spanish bark Fluvix	Santiago	233	12	do.
Jan. 24	Spanish brig Propelta	Havana	261	13	do.
Jan. 24	American schooner J. A. Brown	Cardenas	173	8	Cargo.
Feb. 2	Spanish bark Josefa	Cienfuegos	175	13	Ballast.
Feb. 3	Spanish bark Antoinita	Havana	320	14	do.
Feb. 15	American schooner E. M. Sawyer	do	131	5	Cargo.
Feb. 21	Spanish brig San Jose	do	233	14	Ballast.
Feb. 25	Spanish bark XII Junio	do	570	16	do.
Feb. 26	Spanish brig Nemesia	Cardenas	243	11	do.
Feb. 29	American schooner Geo. Washington	Baracoa	73	5	Cargo.
March 1	American schooner B. F. Lowell	Matansas	325	8	do.
March 2	American schooner J. A. Brown	Cardenas	173	7	do.
March 8	Spanish bark Crescencia	Havana	273	13	Ballast.
March 18	Spanish brig Antonio	do	269	11	do.
March 28	Spanish brig Enrique	do	150	9	do.
April 5	American schooner J. A. Brown	Cardenas	173	7	Cargo.
April 25	Spanish bark Tres Auroras	Havana	348	10	Ballast.
May 16	Spanish bark N. S. de las Angelo	do	417	14	do.
June 19	British brig Joshua King	Cardenas	310	9	Cargo.
July 14	Spanish bark Neauvo Ignacia	Matansas	350	15	Ballast.
July 17	Spanish bark Maria	Havana	321	13	do.
July 17	Spanish brig Ynes	do	131	11	do.
Aug. 2	Spanish brig Pepe	do	151	10	do.
Aug. 16	Spanish bark Maria Carolina	do	605	13	do.
Aug. 18	Spanish brig Profita	do	261	13	do.
Sept. 28 ^a	Spanish bark Olympia	do	481	14	do.

^a Arrived at Tybee August 18.

THE TYPE OF THE DISEASE.

It need scarcely be stated that the pestilence was genuine yellow fever; its character and type being of a most malignant form, similar to that of Shreveport in 1873, where I spent upwards of eight weeks, and much more malignant than any I had met with in previous years in New Orleans, from 1864, including the memorable epidemic of 1867.

That the late epidemic was rendered much more fatal from its mixed character, having been intimately associated with a malarious element through peculiar climatic causes existing at the date of invasion, admits of no doubt, and, from those competent to judge, closely resembled the previous great epidemics of this country in latter days, as that of New Orleans, La., in 1853; of Savannah, Ga., in 1854; and of Norfolk, Va., in 1855.

I need but to allude to the infectious nature of the disease, as that was self-evident, and that every case of yellow fever is a source from which radiates as a centre new fomites, under suitable atmospheric conditions, attacking those first who are more immediately exposed, until the disease has taken in its embrace all unacclimated persons.

Although we have stated the period of incubation to be usually about four days, there were cases in which the fever appeared within three days, and as remote as two or three weeks after exposure to the infection.

THE ATTACK AND SYMPTOMS.

The disease was ushered in sometimes with, and at other times without premonition, but usually there was experienced a feeling of malaise preceding the onset of the disease, and in most of the cases a chilly sensation, rarely with a marked shaking chill; great depression and lassitude, pain in the back and head, generally intense, sometimes in the limbs, or either or all at the same time, occasionally accompanied by spasms in the lower extremities similar to that of the Asiatic cholera, with nausea or a tendency to vomit, while slight or entire absence of pain or chill characterized many of the milder attacks. This chilly feeling soon merged into the fever, much higher than with ordinary fevers, often of a violent and malignant character from the first, in many instances attacking the brain and not terminating under three days. The worst cases were unusually long in convalescing, and especially prone to relapses on the slightest imprudence. Many cases, and particularly the relapsed, required twenty, thirty, and even fifty days; in one instance, the longest that I had seen during the epidemic, one of the first seen on my arrival and convalescence fully established at the date of my departure, occupied a period of upwards of six weeks.

The skin was hot and dry. The temperature of the body much higher than in the ordinary fevers. The pulse full and strong, ranging from 110 to 130 and upwards. The tongue coated, sometimes dirty, but usually presenting a dark, flabby appearance. With a few the tongue was moist; with others, dry and pointed, occasionally parched, accompanied with dryness of the mouth and fauces and great thirst; with a few, agonizing calls for large draughts of cold water.

The average duration of the febrile paroxysm or active stage was sixty-two hours or about two days and a half, the shortest twelve and the longest one hundred hours. This state was usually succeeded by a corresponding depression of all the vital powers passing into the calm stage and constituting the stage of depression. The pulse has been known often to fall in the number of beats from 130 or 120 to 80, 70, 50, and even to 40 beats in the minute in an almost incredible short space of time. The temperature again becoming natural with some, and in others still keeping up, bearing no relation to the lowered state of the pulse.

In the grave or severer cases the face presented a suffused or reddish appearance, with the eyes highly injected. Extreme restlessness or great alarm was often present; the patient half unconscious; struggling to get out of bed, culminating occasionally in furious delirium, but generally of a milder character, while profound stupor often marked the

last stages. In a few death-scenes that I witnessed not a ray of thought was manifest; in others the intellect was retained to the last.

The perspirations were variable, sometimes only partial, at others irregular, occasionally offensive. The usual appearance of the skin was often wanting, but bronzed in some and afterwards yellow; the latter unusually rare. In many of the fatal cases, simultaneously with yellow eyes and skin, black stools, reddish-dark urine, and bloody vomit; the skin was often covered with bluish or black blotches, increasing to large-sized dark patches after death, occasionally even before the fatal termination. During convalescence abscesses and eruptions on the face sometimes succeeded, but were not so frequent as I had witnessed in previous epidemics. Desquamation of the cuticle was quite common, especially on the hands, face, and feet. While a correct diagnosis was occasionally difficult, the tongue, mouth, and gums usually presented all the characteristics of the disease, and the experienced, with the assistance of the fever-thermometer and urinary tests, were enabled to decide particular cases. Black vomit was frequent, and it was a noticeable fact that numerous cases recovered from it. In a large proportion of cases the poison determined to the kidneys early in the disease, frequently giving rise to suppression of the urinary secretion, and death following on the third or fourth day, proving more fatal even than black vomit. Generally the urine was on the first day free and of a red color, later in the disease having a turbid appearance, and still later—on the fourth or fifth day—dark-reddish and somewhat muddy. In severe cases albumen was present after the second or third day, and in the still severer or fatal cases, in an amount surprisingly large.

MIXED AND RECURRENT FEVER.

As before stated of the type of the disease, from its mixed character, being intimately associated with a powerful malarial or congestive element, may be inferred manifestations and symptoms at the onset of extreme variableness; this element sometimes accompanying the disease, complicating the original attack; at other times following so closely as to engraft itself immediately upon it, and a large number, having previously had a malarious attack, were soon followed by the attack of the prevailing infection. In consequence, great vigilance was required on the part of the attending physician, in order to meet these varied changes in symptoms, and correspondingly prompt, varied treatment, suitable to each individual case.

The disease did not confine its ravages to the white race as is usual, but attacked negroes and those supposed to have been acclimated or

inured to the locality, resulting in remarkable mortality, with a large percentage of deaths in children under twelve years of age.

Recurrences of the fever were frequent, sometimes traced to imprudence in diet, but as often to no perceptible cause, and a large number of relapses occurred. These cases of recurrent fevers were significant of the changes in the blood, and not uncommonly assumed a typhoid character, requiring the appropriate treatment for such cases.

YELLOW FEVER AT BRUNSWICK, GA.

Assistance being no longer required at Savannah, the epidemic having practically ended, I proceeded, as directed, to Brunswick, Ga.

Arriving on the 5th of November, I immediately placed myself in communication with the city authorities, including the health officer, and ascertained substantially the following regarding the yellow-fever epidemic of 1876 at that place:

The city of Brunswick, containing a population of 2,800 to 3,000 inhabitants, including some 800 blacks, and distant south from Savannah about ninety miles, is situated on a peninsula similar to that on which stands the city of Savannah, but differing in being almost surrounded by salt-water, the entire western and southwestern side being accessible to shipping. On the east side of the city there is a vast expanse of salt-marsh, interspersed with numerous large salt-creeks, leading into what is known as the Black river, which is a very large salt-water stream, emptying into Saint Simon's sound. There are no fresh-water streams or marshes within many miles of the city.

Brunswick has long been known for its delightful climate and healthfulness, being almost entirely free from miasmatic diseases, and in the history of the city there is no record of the previous existence of yellow fever. The condition in a sanitary point was much the same as in former years, and we are told that the town was perfectly healthy up to the outbreak of the epidemic. From Dr. BLAIN, the present health officer, I learned there was noticed that a malarial influence prevailed, but no conditions could be ascertained to exist that warranted the supposition that yellow fever could originate in the city.

The doctor stated that the first case of the disease that came under his observation was on the schooner "Wm. H. Boardman," on or about the 20th day of August, which appears to have been the first recognized case of the fever. It also appears that the captain of this vessel called upon the doctor to visit the steward, at the same time informing him that his vessel was ready for sea and would sail the following day. The steward was believed to be in the first stage of yellow fever,

and while on board the captain stated that he had another sick man on board, but that he "had him all right," and did not need professional advice for him. This man died the following day, and the schooner sailed for New York on the 22d day of September. The schooner "Wm. H. Boardman," of Calais, Maine, is said to have come from the Windward Islands, touched at Havana, and sailed direct for Brunswick, and was thought to have brought the infection; but such statement is authentically contradicted by Col. COLLINS, collector of the port, and others, and that the fever was most positively brought by the Spanish bark "Marietta," in which the health officer has since concurred. This vessel cleared from Havana July 20 and arrived at Brunswick August 1—seven days direct—in ballast. The captain admitted having lost all his crew in Havana, the new crew from there being all convalescents from yellow fever, moored alongside of the wharf at the centre of the city, without having been quarantined, and no restrictions upon the free communication on shore, the captain calling at the collector's office several times daily. The bill of health produced by the captain was endorsed by the American consul-general at Havana to the effect that yellow fever was prevailing in the city and shipping of Havana. This vessel was allowed to discharge her ballast, in common with others, in front of the city, near Littlefield & Tison's wharf. From the fact, since ascertained, that the "Boardman" never went to Havana, but came direct from Island St. Lucie, coupled with the later date of arrival, and that she had been moored alongside the "Marietta," it seems evident that the disease was communicated from the latter to the former vessel.

The Spanish bark "Valentina" cleared from Havana August 12, arrived at Brunswick August 19 in ballast, seeking cargo; lay in the stream opposite the southern end of the city; afterwards chartered to load at Duboy Island, some fifteen miles distant, where the fever shortly after broke out—attributable, no doubt, to the infection having been communicated from this vessel. The schooner "Edward Johnson," from New York, arrived at Brunswick July 28, and lay near the "Marietta," just above her. The captain and two men of the "Johnson" died—the captain of uremic poisoning.

The schooner "M. M. Pate" landed in close proximity to the "Boardman." On September 3, the vessel being loaded and ready for sea, the health officer was called to the mate, who was found moribund and died in a short time. On this schooner was attended the captain, mate, steward, and two seamen; all of whom recovered, excepting the mate, as before stated. Dr. BLAIN states that up to this date—September

3—he had seen no cases of fever among the citizens of Brunswick. On the night of September 4 he was called to attend a Mr. Zeigler, who, with a friend, occupied sleeping-apartments above the warehouse of Messrs. Littlefield & Tison, in proximity to the point where the ballast of the “Marietta” and other vessels was discharged. Both of these gentlemen were taken ill about the same time, and both died during the doctor’s illness; as also Mr. Burns, city marshal.

Dr. BLAIN was attacked September 6, and, although still weak, resumed practice on the 12th, having been driven to this step by the increasing demands for medical attendance.

On the 5th September the brig “Laura Gertrude” came into port; landed at Littlefield & Tison’s wharf, in proximity to the ballast heap. The doctor was called on the 14th to attend the captain, and soon after the first and second mates; all of whom were very ill, but recovered under treatment.

Until about September 12 the fever was almost entirely confined to the shipping and to a few buildings on Bay street. From this date it became epidemic in the city, and spread with alarming rapidity. Skilled nurses were not to be had, and in a short time it became impossible for the sick to procure proper medical assistance. By the 30th September every physician had been stricken down, and it is said to be impossible to depict the horror of the situation. “*Words are insufficient to express the fearful reality,*” said the doctor. “My labors were incessant; no rest day or night. By the 25th September fourteen cases at home, every servant sick, and only one little child in health; no nurses to be procured.” Fortunately medical aid reached the stricken city on September 28. Two days after, help arrived from New Orleans, with a few skilled nurses, and later other medical assistance.

By the 14th of October the fever seems to have abated, and all but one of the visiting physicians had left. This proved to be only a lull in the storm, the fever having continued its progress from west to east and northeast until it reached the outskirts of the city.

In consequence of the sparsely-settled condition of Brunswick, and the free circulation of air, with passable sanitary observances, it is believed this epidemic has proven far less fatal, in proportion to the number of cases, than is usual, although there have been a large number of typical cases of the disease.

At the date of my departure there had been 122 deaths—102 whites and 20 colored.

OFFICE OF THE SURGEON-IN-CHARGE,
Galveston, Texas.

YELLOW-FEVER EPIDEMIC AT FERNAN-
DINA, FLA., IN 1877.

YELLOW-FEVER EPIDEMIC AT FERNANDINA, FLA., IN 1877.

BY ROBERT D. MURRAY,
Surgeon United States Marine-Hospital Service.

TO THE SUPERVISING SURGEON-GENERAL,
U. S. MARINE-HOSPITAL SERVICE:

It is impossible for me, at present, to give a comprehensive account of the yellow-fever epidemic at Fernandina, Florida, during the summer of 1877. I will record such facts as I was able to gather, and hope they may contribute in some measure to the history of that disease. Although my primary object was to study the causes of the outbreak, as soon as I arrived, arduous duties pressed upon me to such a degree that my object was almost lost sight of in the work of relieving the distressed.

Immediately on my arrival, September 21, I proceeded to Oldtown, to take charge of the sick at that point, which is about one mile north of Newtown, the business portion of Fernandina. A salt-marsh, three-fourths of a mile wide, separates the old and new towns, and is crossed by a plank walk. Oldtown was considered healthy and out of danger from the fever poison, as it is located on ground that will average fifteen feet above the waters of the bay. Oldtown is bounded on the north by a salt-marsh, on the west by the bay, on the south by a salt-marsh, and on the east the land is continuous with Amelia Island. The population is ordinarily about 350 souls, nearly equally divided in color. Although the place is noted for its good health, there occurs, every autumn, more or less of a mild malarial fever, called, locally, "fall fever," and of such little import as to be quite forgotten in other seasons. All the streets but two are grass-grown, and altogether, the hamlet is beautiful and should be a delightful place in which to reside.

One case of yellow fever occurred on the 2d of September, as was shown subsequently. About the 15th of that month, there were two or three cases of slight febrile trouble, which were thought by the families to be of "fall fever," as they soon recovered. On the 20th of September, four cases occurred, making, with the first case, five who were sick, all of whom were women, and all but one slept on the ground floor. During the night of the 20th and morning of the 21st, about

twenty persons of all ages and colors were attacked, all of whom were seen by me up to 3 p. m. of the same day. By noon of the 22d, I had visited forty-two persons, excluding four of the five who were sick prior to the night of the 20th, and by night of the 23d I had treated sixty cases, dispensing at the bedside medicines which I carried with me in a bucket and in my pockets. It is worth noticing, that nearly all of the sick were persons who slept on the ground floor. That there were others sick, I have no doubt, as it was impossible for me to answer every call, but at every opportunity I made known the method of treatment I believed to be proper, and supplied medicines on call, so that many could care for their own sick, either without my aid or before I could reach them.

Under instructions from the Sanitary Committee, I established a local hospital which served as a depot for supplies and cook-house for the hired nurses. There was no need for the hospital as such, as but one patient was treated in it—a seaman entitled to the benefits of the Marine-Hospital Service, but it was thought advisable to be prepared for any emergency of poverty or homelessness.

Soon after my arrival I caused an accurate census of the inhabitants to be made, and subsequently added to the lists all arrivals up to my departure. There were in Oldtown, from September 20th to October 25, the following:

White...	Adult males	31
	Adult females	28
	Youths, 12 to 20 years.....	15
	Children, 1 to 11 years	31
		—
	Total white population.....	105
Colored..	Adult males	40
	Adult females.....	41
	Youths, 12 to 20 years.....	24
	Children, 1 to 11 years.....	58
		—
	Total colored population.....	163
		—
	Aggregate population	268
		==

The above includes the crew of a vessel lying at Reed's-mill wharf—five men—and excludes all visitors, nurses, &c., who came to the hamlet temporarily. It does not express the usual population, as several families had gone away to spend the summer or to escape the fever, and two or three families moved over from Newtown for the latter reason.

The number of sick under my treatment was as follows:

White adult males	25
White adult females.....	18
White youths, 12 to 20 years.....	13
White children, 1 to 11 years	25
<hr/>	
Total white patients.....	81
<hr/>	

There were nine deaths, in all; eight under my observation, and one five days after my departure. Seven deaths occurred among adult males, aged respectively 26, 33, 37, 38, 44, 52, and 57 years; one adult female, 35 years of age; and one youth, aged 17 years. Three deaths occurred in three and a half days after the onset of the disease; the others occurred after relapses, or a more or less prolonged prostrate condition. Black vomit occurred in one fatal case and in ten or twelve of the recoveries.

Among the colored population, there were:

Adult males.....	19
Adult females.....	22
Youths, 12 to 20 years.....	17
Children, 1 to 11 years.....	27
<hr/>	
Total colored sick.....	85
<hr/>	

There were about a dozen relapses in these cases, but no deaths occurred.

In addition to the above, I treated several cases in the country, (both white and colored,) of which none were fatal.

The treatment employed was, in the main, the same as I recorded in a former report—*i. e.*, a hot bath, followed by a cathartic and large doses of cinchonidia, with absolute rest and lowest diet. My confidence in quinine and the allied alkaloids is increased by my experience at Fernandina, and my only error was a too cautious use of them. I am certain that I owed my ability to keep on duty (if not my life) to the 9 to 15 grains of cinchonidia that I took daily. In Key West, in 1875, I used quinine in a few cases, as a prophylactic, with good results, but the facts were too meagre to base more than an opinion upon them. From personal experience and considerable observation, I am convinced that by taking from 10 to 30 grains of quinine, daily, will ward off an attack of yellow fever, or render it so mild as to almost preclude the danger of death.

I have no definite statistics of the number of sick at Newtown. The great number sick during a short time, the frequency of relapse,

the relatively small number of deaths, and the liability to fever of those who had suffered from the disease previously, are the features most worthy of notice. The malarial influence was marked, and the annual prevalence of "fall fever" adds force to the opinion that many of the cases were of malarial origin. Of the identity of yellow and malarial fevers I will not discuss at present. I must remark, however, that a large section of Northeast Florida was affected with malarial, "bilious," and continued fevers during the fall, and not only the towns but country homes entirely off the lines of travel.

The disease at Oldtown was, I believe, *caused* by the drifting of poisoned air from Newtown. Heavy mists could be observed, every evening and morning, from about September 12th to the 25th, slowly floating from Newtown, and gave the pilots on their lookout not a little uneasiness several days before a case occurred. The breezes which had been very light for two months were not strong enough to dissipate the poison-laden fogs, but served to produce the same condition of atmosphere at Oldtown that was afflicting the people in the lower portion of the city.

The case of fever which occurred about the first of September, appears to have originated by the person having visited the infected ship "Skebladna" on the 22d of August.

I am not prepared to speak confidently on the cause of the original outbreak at Newtown, but I believe the following explanation will accord with the laws of the yellow-fever poison, and with the conclusions of a great majority of those who have knowledge of the state of affairs existing at Fernandina:

The business portion of Newtown is chiefly built on low-tide-soaked land, and the wharfage is on made ground. One side of the settlement is quite low, a flat undrained marsh adjoining it, which receives much of the surface drainage of the town, and, in dry, warm weather, becomes fetid and foul. Nearest to this marsh the latest improvements have been made, and considerable soil was upturned during the summer. The gutters of the whole place were made years ago and are clogged by rubbish, and grass grown so that all of the drainage which found its way into them had no escape but to soak into an already contaminated soil, or to wait its time to evaporate. In many places in the streets mud-holes existed for several days after a shower of rain. Well-privies are the rule, with, I believe, one exception, and no regulations were enforced as to removal of the contents. The water used also comes from wells.

It has been the custom to throw ballast from vessels on the wharf region, and back of it toward the marsh, which, although improving

the wharf property, served to aid in obstructing the surface drainage to the sea.

The summer began early, was hot, damp, and close, with southerly and westerly drifting of air, and light showers. The amount of "dead calm" was unusual, and, despite the fact that the thermometer did not mark excessive heat, the weather was so uncomfortable as to cause many remarks, and give rise to not a few suggestions of a sickly season.

In view of the condition of the city, the upturning of rotten soil, the calm weather, and the long season of heat, I believe that yellow fever would have broken out even if the port had been effectually closed, although the date might have been later and the district affected smaller.

An aggravating cause arose, however, in the arrival of the Norwegian ship "Skebladna" on the 23d of July. The vessel was in ballast, which consisted of sweepings from the streets of London, England, and had been sixty-three days on her passage, most of the time in the latitude and heat of Fernandina. The vessel was in a stinking condition and had mild sickness on board, but no fever. The health officer struggled nobly to prevent the vessel from going up to the town, but lost his position in an unequal struggle with an Aldermanic Board of Health. In the contest between *business* and public health, the ship was allowed to come to the wharf and to discharge her rotten, filthy cargo of city offal.

In a few days, after commencing the discharge of the ballast, sickness began among the crew, the men employed in the work, and the people living nearest where it was deposited, and the disease progressed directly from this quarter.

I am of the opinion that the fever would have occurred had no vessel entered the port; but it is manifest that the vessel mentioned added much to the virulence and extent of the epidemic.

The importance of communities making preparation in advance for furnishing relief and obtaining aid from abroad, when necessary, was brought forcibly to my mind while in Fernandina. Not wishing to find fault with or criticise the work of the Sanitary Committee, I must say that their labors would have been lighter, the public relief more expeditiously and fairly distributed, and the element of scare less active, if in time of health some simple plan had been devised and agreed upon to secure intelligent concert of action in time of pestilence. The precautions hinted at would have saved lives, money, alarm, and sorrow.

UNITED STATES MARINE HOSPITAL,
Key West, Fla.

[*Health Committee of Fernandina to Dr. Murray.*]

FERNANDINA, FLA., *December 21, 1877.*

The undersigned, Health Committee, appointed to inquire into the origin and spread of yellow fever in this city, respectfully solicit your testimony in this behalf, and would ask you to answer the following questions in writing:

1st Question. If you became acquainted with the disease that prevailed here during the months of September and October last, please state what it was—and if you say it was yellow fever, state whether or not it was complicated with other diseases, and of what kind; and further, what character it assumed?

2d Question. State professionally what produces yellow fever, and what are the pre-existing causes from which it germinates and spreads. Is it a *vapor* from a heated marshy ground, or poisonous gases produced by high temperature, or is it *animalculæ* (infusoria) arising or breeding in low stagnant water, marshes, or filth exposed to a lengthy intense summer heat?

3d Question. Is the latitude of Fernandina within the yellow-fever region, and do you ascribe the late epidemic to ordinary or extraordinary causes?

4th Question. Have you investigated the cause or causes which produced the disease in Fernandina? If so, state the result of your investigation. And if you have not particularly investigated the causes, please state what, in your opinion, the cause or causes may have been.

5th Question. Can an unusually hot summer, the mercury never falling below 90°, with warm nights, and occasionally heavy showers, and winds generally from the south, southwest, and west, produce yellow fever in our locality?

6th Question. Fernandina being situated on an island, on the western border of which, and between the island and the mainland, lay large bodies of salt-water marshes, the ground of which is heavy mud, and is exposed to the hot sun at low water—can such location and condition produce yellow fever in extraordinarily hot summers?

7th Question. The southern portion of Fernandina, for the distance of one-fourth of a mile, is flat, and has been without draining, and the heavy showers that prevailed here during the season inundated this whole region, so much so that the water there became stagnant and foul, and was constantly exposed to the hot sun during the summer months. What influence has such a condition of things upon the origin or spread of yellow fever?

8th Question. Throwing open the ground and cutting ditches in and about the region stated in the foregoing question 7, during the hot summer months, by which the wet and foul stuff became exposed to the sun—state what influence such practices bear for either the germination or spread of yellow fever?

9th Question. The people of Fernandina as a general thing, and particularly in the flat locality referred to in question 7, have shallow wells with common board curbing, in which the surface-water gathers, and which the people use for cooking and drinking. What influence in your opinion has this condition upon the origin or spread of yellow fever, or any other malady?

QUARANTINE CONSIDERATIONS.

10th Question. If scrapings from the streets of London, England, are brought here in ballast, which was found to be rotten and of exceedingly bad odor, and put on our shore during the hot summer, near the low marshy locality referred to in question 7—can such produce yellow fever, or any other malady?

11th Question. If a ship from a southern port where yellow fever naturally prevails, with emigrants or people of low, unclean character on board, on its voyage, comes to our port during the hot summer season and remains several weeks; or if a merchant-vessel should come here from a yellow-fever region with ground of such region as ballast, but having no sickness on board—can by any such means yellow fever become imported, and germinate in our locality?

12th Question. What practical observations have you made or experienced as to what sanitary measures have proven the most available to prevent the existence of yellow fever?

13th Question. What sanitary means and quarantine measures do you consider to be the best to prevent the importation, germination, and spread of yellow fever in our cities?

Very respectfully, yours,

JOHN FRIEND,
H. E. DOTTERER,
G. STARK,
A. B. NOYES,
JOHN ALSTON,

To R. D. MURRAY, M. D.,

Committee.

Key West, Fla.

[*Letter of Surgeon Murray to Health Committee.*]

UNITED STATES MARINE HOSPITAL,

Key West, February 14, 1878.

GENTLEMEN: Your communication, with questions, soliciting my testimony and opinions relative to the prevalence of yellow fever in your city last summer, came to hand while I was confined to a sick bed, and the answering of it has been unduly deferred on account of ill health and a press of official duties. I much regret this, as if my opinion was to be of immediate service to you it should have been in your possession sufficiently early in the winter to permit you to make practical application of it, by instituting such measures of municipal sanitation as will be imperfectly indicated in it. The proper construction and management of municipal health-conservers will, however, require much thought, money, and time, and the future will be full of opportunity for you to apply such of my suggestions as are satisfactory to you and your fellow-citizens.

The difficulty of replying to all of your questions in a manner that will win approval from all, has no doubt impressed itself upon your minds, and I anticipate that, owing to my views upon the origin of the disease in question, many worthy persons will dissent from my conclusions and advice. But recognizing that *the taking the beam out of our own eye* is the most vexatious task of sea-coast towns, I am prepared to meet objections to rational reforms, confident that time will remove them all, even though a tardy learning of the lesson permits the destruction of thousands of precious lives and works evil upon trade and personal comfort that cannot be estimated in dollars.

Devoted to the relief and prevention of human suffering, enthusiastic as to the future of Florida as a commonwealth, and her towns as healthy resorts, and earnest in my advocacy of municipal and State reforms to promote the health and happiness of our fellow-citizens, I submit the following replies, hoping that among them all there may be found something that will be of service to your beautiful city:

ANSWERS TO QUESTIONS BY NUMBER.

Answer I.—I was at Fernandina from September 21 to October 25, and was on duty at Oldtown, making visits at Newtown frequently enough to gain an intelligent idea of the condition of affairs. The disease prevailing in that period was yellow fever, and it was complicated with all phases of malarial disorder. The cases were chiefly of ephemeral and mild inflammatory character, but several notable congestive cases occurred.—(*La Roche.*)

Answer II.—Yellow fever is, in my opinion, produced by poisonous gases, emanating from conjoined animal and vegetable matters undergoing decomposition in a calm and moist atmosphere during a high degree of solar heat. The usual pre-existing conditions are human excretæ, exhalations, and slops, mixed with the soil, in malarious regions, with a temperature of 85° to 90°, and calm, damp weather continuing for four to six weeks. Do not think that simple marsh vapor will produce yellow fever, or that high temperature conjoined will do so; nor do I believe that yellow fever proceeds from animalculæ, or infusoria, or germs, but that high solar heat with calm and moisture in a region of low, stagnant water, marshes, &c., contaminated with city offal, will, in four to six weeks, produce yellow fever. Persons living nearest to the source of the poison will be attacked sooner than those of equal resisting power who reside farther off. Strong breezes, particularly at night, will doubtless dissipate the poison and render it less harmful.

Answer III.—Yes. Any place subjected to a temperature of 85° to 90° for a month or more, is in the yellow-fever "zone," for the time being. The late outbreak of yellow fever at Fernandina was due to *ordinary* causes—conditions that are, unfortunately, too common.

Answer IV.—My sojourn at Fernandina made me somewhat familiar with the place and the disease, but my duties did not permit a careful investigation of the origin of the pestilence, or to prepare an accurate history of its progress. I believe that the marshy ground adjacent to Newtown, which was rashly upturned in some places, *the imperfect street-gutters, the well-privies*, and general lack of drainage gave an opportunity for prolonged high heat and unfavorable winds to *generate* poisonous gas sufficient to give the fever to all persons living in the lower part of the city, who were at all susceptible, and that, without strong winds or a removal of the people, nothing could have averted the threatened pestilence. The thorough sprinkling of the region with carbolic-acid and sulphate-of-iron solutions would have diminished its ravages.

Answer V.—Yes, if the city ordure and offal be not removed or effectually disposed of.

Answer VI.—The marshes, uncontaminated by excretal matters, would not give rise to yellow fever under any degree of heat.

Answer VIII.—The practice would increase the ordinary amount of fever poison so as to precipitate an outbreak of the disease, and would increase the virulence and extent of yellow fever existing at the time.

Answer IX.—The custom is a vicious one; producing malarial cachexia, digestive disorders, diarrhœa, and typhoid fever. Will not favor the production of yellow-fever poison, but will render the people less able to withstand its effects.

Answer X.—Consisting, as it must, of matters contaminated with human and animal excretæ, the occurrence of digestive disorders, diarrhœa, &c., would probably follow any prolonged association with such ballast. It would cause yellow fever of itself, if the conditions favorable to decomposition and retention of the poison were present, and would hasten and intensify a preparing outbreak of the disease.

Answer XI.—1st Section: No, if the vessel itself was in a cleanly (or healthy) condition.

2d Section: No, if the ballast did not contain animal or excretal matters, and voyage was not prolonged; but if the vessel had been at sea long enough for the emanations from the crew and decomposition of the bilge-water to render the ballast filthy, even if the crew were in good health, the vessel would be unsafe, whether the earth came from a northern or southern port.

Answer XII.—None.

Answer XIII.—Importation: Establish, at the expense of the local community, a rigid, thorough surveillance of all vessels from doubtful ports, or that have been on long, hot voyages; not common quarantine visits, which consist in being gracious to the captain and taking a drink or cigar, or both, but a critical examination of crew, cargo, and bilge. If a person is sick on board, *suspect* the vessel for sufficient time, but permit *all* persons to have free pratique. If cargo is doubtful, or bilge is stinking, let a thorough cleansing and disinfection be made at labor rates, chargeable to the vessel.

Generation: Substitute cistern-water (or boiled water) for all well, swamp, or stream-water; abolish all well-privies and compel the use of water-closets, earth-closets, or boxes, whereby the excretal matters can be cheaply and frequently removed to a safe distance. Arrange the streets of cities and towns in accordance with a well-defined grade, so that there will be complete drainage. If there be not sufficient natural fall, construct a drainage-well, and trend all drainage into it, emptying the well by means of pumps. I am disposed to favor tidal-drains, if they are given smooth sides and bottoms and are properly attended to.

Let the street-gutters be made perfect and smooth, and impermeable by water above or gases beneath, and, as far as possible, let the streets and sidewalks be of the same character. Let there be pipes or drains leading from *every* yard to the street-gutters, whereby all laundry, bed-room, and kitchen slops can be drained off into the gutters.

Spread: Isolate the *locality* of outbreak (that is, the place where the persons *got* the fever) and disinfect the region with carbolic acid. At once begin a *covering up* of all nuisances with sulphate of iron, chloride of lime, and carbolic acid.

Warn all people to avoid the infected locality, to keep clean, to sleep upstairs, to retire early, and not to be alarmed; enjoin them to take cinchonia salts on slightest malaise or indisposition.

Important: Establish boards of health distinct from city councils, or other official bodies, so that members will have long terms of service, and in which the city, commercial interests, and the medical profession will each have a voice by their respective representatives, and continue the members who acquire most practical skill in promoting public health. Have efforts made to interest the people in good health and to teach them the principles of sanitation.

Let port inspectors and sanitary police be of the laity, but insist that the health officers be medical men of recognized and apparent efficiency, and give them needed discretionary powers and fair salaries.

* * * * *

Very respectfully,

ROBERT D. MURRAY,
Surgeon U. S. M.-H. S.

To JOHN FRIEND AND OTHERS,
Health Committee of Fernandina, Fla.

INDEX.

INDEX.

A.

	Page.
Abandonment of sick and destitute seamen.....	8
Adoption of Metric System of Weights and Measures.....	109
Ague and remittent fever.....	36
Annual inspections.....	11
Appointments of medical officers not local in character.....	9
original, made to the grade of assistant surgeon only.....	10
political.....	9
made to the general service only.....	9
Apprentices on merchant vessels.....	152, 153
Appropriations, deficiency, prior to 1873.....	3
for the Service since 1798.....	28, 29
no deficiency since 1873.....	3
Assignment of medical officers.....	9
Avoirdupois ounces converted into grammes.....	129
pounds converted into grammes.....	128
pounds converted into half-kilogrammes.....	129

B.

BAILHACHE, Surgeon P. H., on the "Physical Examination of Seamen".....	109-147
Baltimore, no marine hospital at.....	22
Bedloe's Island, as a site for a marine hospital.....	21
Board furnished seamen.....	5
Bright's disease.....	35
Brunswick, Ga., yellow fever at, in 1876.....	185
Buildings and grounds, Marine-Hospital.....	18
repairs to, and cost of, 1877.....	19, 20
Buildings, protection of, against fire.....	20

C.

Canadian "Sick Mariners' Fund".....	8
Centennial Exhibition.....	15
Centigrammes converted into grains.....	127
Centilitres converted into minims.....	128
Chaneroid.....	35
Chelsea, Mass., marine hospital at.....	19
Chicago, Ill., marine hospital at.....	19, 20
Cholera and yellow fever.....	13
infected goods.....	13
endemic homes of.....	13
Circulatory system, diseases of.....	35

	Page.
Clerical force in the office of the Supervising Surgeon-General.....	23
Cleveland, Ohio, marine hospital at.....	18
Coast-Survey seamen.....	5
Comments on contributed papers.....	109
the medical and surgical statistics.....	35
Commerce, Committee on, of the House of Representatives, with reference to seamen.....	17
Comparative economic exhibit.....	27
Contributed papers, comments on.....	109
Conversion of Apothecaries' weight into metric.....	120
measure into metric.....	121
metric measure in apothecaries' measure.....	127
weight into apothecaries' weight.....	126
Cost of service, 1877.....	3, 27
per patient, average.....	3, 4, 27
Cubic centimetres converted into minims.....	127
fluid drachms.....	127
fluid ounces.....	127
wine pints.....	128
value of, in minims.....	119
how written and abbreviated.....	125

D.

Death, causes of.....	95-102
Deaths from specific causes.....	102
Bright's disease.....	35
dysentery.....	35
heart disease.....	35
phthisis pulmonalis.....	35
pneumonia.....	35
remittent fever.....	35
small-pox.....	35
yellow fever.....	35
Decigrammes converted into grains.....	127
Deficiency appropriation, none made since 1873.....	3
prior to 1873.....	3
Destitute American seamen.....	6, 7, 8
Detention of vessels in quarantine.....	13
Detroit, marine hospital at.....	19
Discipline impaired where political preference influences appointments.....	9
Diseases and injuries, table of.....	40-93
relative proportions of.....	36, 94
epidemic and contagious, with relation to seamen.....	153
infectious.....	13
general, proportion of.....	36
of the circulatory system.....	35
lungs as affected by river exposure.....	157
principal, do not vary considerably.....	36
proportion of, to injuries.....	35

	Page.
Districts and stations of the Marine-Hospital Service	37
District of the Great Lakes	38
Gulf	37
Middle Atlantic	37
Mississippi	38
North Atlantic	37
Ohio	37
Pacific	38
South Atlantic	37
Doses, table of	135
Drachms, Apothecaries', converted into grammes	120
fluid, converted into cubic centimetres	121
Drowned, apparently, how restored to life	12
Dysentery, deaths from	35

E.

Economic and financial statistics	27
exhibit, comparative	27
results where medical officers are stationed	9
Effects of seamen who die on a voyage	16
Engineer Corps of the Army, seamen on vessels of	5
Equivalents, approximate, of Apothecaries' weights and measures in metric terms	124, 125
Examination into professional qualifications prior to appointment	10
of seamen, physical	12, 13, 109, 147
Examining boards	10
Exhibition, Centennial	15
Expenditures, annual, from October 1, 1798	28, 29
by warrant, on account of the Marine-Hospital Service, in 1877	3
for extraordinary purposes since 1871	3, 4

F.

Feet converted into metres	129
Fernandina, yellow fever at, in 1877	191
Fevers, malarial	35
Financial and economic statistics	27
exhibit	3
Firemen and "roustabouts" on river-boats	157
on the rivers	160
Fire, protection against	20
Foreign seamen	6
countries, American seamen in	6
ports, hospital-dues collected at	6
Fraudulent certificates presented	12
Fund, Sick Mariners', of Canada	8

G.

	Page.
Government vessels, seamen on	5
Grain, troy, value of, differing	114
Grains converted into grammes	120
decigrammes	121
centigrammes	121
Gramme, value of, in grains	119
how written and abbreviated	125
Grammes converted into grains	126
drachms	126
troy ounces	126
avoirdupois pounds	128
avoirdupois ounces	129
Great Lakes, district of	38
Gulf, district of	37

H.

Half-kilogrammes converted into avoirdupois pounds	129
litres converted into pints	129
Hand-book of medicine and surgery for ships	14
Health interests of seamen	18
Heart disease, deaths from	35
Hernia	35
Hospital-dues collected in 1877	3, 27, 28
annually since October 1, 1798	28, 29
in foreign ports	6
covered into the Treasury in 1877	3
Hospitals as boarding-houses	4
furnished and opened during past four years	4
private	9
Hospital clothing furnished	5
patients, number of	4
and ratio of	39, 103
of, by districts and months	39, 103
ratio of, in each district	39, 103
treatment, duration of	35, 39, 103

I.

Inches converted into metres	130
Incurable cases	5
Infectious diseases	13
Infected goods from districts where cholera and yellow fever prevail	13
shipment of	13
Injuries, relative proportion of, to diseases	36
Insane seamen	5
Inspections, annual, of relief-stations	11
International Medical Congress of 1876	13

K.

	Page.
Key West, marine hospital at	19

L.

Legislation needed.....	10, 16
Life-Saving Service, medical inspection of keepers and crews in.....	12
Light-House Service, seamen of.....	5
Local appointments into the medical corps not made.....	9
Louisville, marine hospital at.....	19
Lungs, diseases of, as affected by river exposure.....	157

M.

Malarial fevers	35
Marine hospital at Chelsea, Mass.....	19
Cleveland, Ohio	18
Chicago, Ill	19, 20
Detroit, Mich.....	19
Key West, Fla.....	19
Louisville, Ky	19
Mobile, Ala	19
New York, N. Y.....	21
Portland, Maine	19
San Francisco, Cal.....	20
St. Louis, Mo	19
buildings, record of	30
property at Natchez, Miss	18
New Orleans, La	18
Ocracoke Inlet, N. C.....	19
Pittsburgh, Pa	20, 21
fund, condition of.....	29
hospitals not provided for at largest ports.....	22
never built at New York, Philadelphia, and Baltimore	22
Marine-Hospital Service, actual cost of.....	27
after appointment of a Supervising Surgeon-General.....	27
prior to appointment of a Supervising Surgeon-General	27
and the Metric System	113
peculiarly an American institution	15
proposed British	150
regulations	16
Measures, cubic, relation of English to metric.....	132
metric to English.....	132
of length, metric, relation of, to English.....	131
English, relation of, to metric	131
Medical and surgical statistics.....	37
comments on	35
skill, none but the best, should be employed.....	10
attendance and medicines furnished seamen.....	5

	Page.
Medical Congress, International, of 1876	13
examining board	10
inspections in the Life-Saving Service	12
officers	9
appointed into the general service only	9
assigned	9
promotions of	9
subject to change of station	9
Medicine-chests	14
Medicines required to be of the best quality	15
Mercantile marine, in relation to yellow fever	110
Marine-Hospital Service, proposed British	150
Metres converted into inches	130
feet	130
yards	129
Metric measures converted into Apothecaries'	127
of length, relation of, to English	131
Metric posological table	135
prescriptions, how to write	125
System and the Marine-Hospital Service	113
of weights and measures	109, 113
objections to	115, 116
object lessons of	109
in the Pharmacopœia	117
labor-saving	117, 118
in prescribing and dispensing	118
weights and measures converted into Apothecaries'	126
for purveying purposes	113
Middle Atlantic District	37
Millilitres converted into minims	128
Minims converted into cubic centimetres	121
Minims converted into centilitres	122
Minims converted into millilitres	122
Mississippi, District of	38
Mobile, marine hospital at	19
Mortality, causes of	95, 102
Mortality from Bright's disease	35
dysentery	35
heart disease	35
phthisis pulmonalis	35
pneumonia	35
remittent fever	35
small-pox	35
yellow fever	35
specific causes	102
rate among hospital patients	35
MURRAY, R. D., Surgeon, on "Yellow Fever at Fernandina in 1877"	191

N.

	Page.
Natchez, marine-hospital property at.....	18
National protection of seamen	16
Navy, seamen of the	5
New Orleans, marine-hospital property at.....	18
no marine hospital at.....	22
New York, no marine hospital at	22
Northern Atlantic District	37
Nursing furnished seamen.....	5

O.

Ocean travel, supervision of, directed to sanitary ends	13
Ocracoke Inlet, marine-hospital property at	19
Office of the Supervising Surgeon-General.....	22
clerical force of.....	23
work in	27
Officers, medical	9
Ohio, district of.....	37
OLDBERG, OSCAR, Phar. D., on "The Adoption of the Metric System of Weights and Measures for Medical and Pharmacal Purposes".....	109, 113
Operations of the Service.....	27
Organization of the Service into districts.....	11, 12
Ounces, avoirdupois, converted into grammes.....	129
fluid, converted into centilitres	122
troy, converted into grammes.....	121
Out-patients, number of.....	4
increasing	4, 35

P.

Pacific, district of.....	38
Papers, contributed, comments on.....	109
Paralysis	35
Permanently-disabled seamen.....	35
Pharmacopœial Convention and the Metric System	117
Philadelphia, Pa., no marine hospital at.....	22
Phthisis pulmonalis, deaths from.....	35
Physical examination of seamen	12, 13, 109, 147
Pints, wine, converted into cubic centimetres.....	128
half-litres	129
Pittsburgh, Pa., marine-hospital property at.....	20, 21
Pneumonia, deaths from	35
Political preference in appointments	9
Portland, Maine, marine hospital at.....	19
Port inspections.....	9, 10
Ports, largest, have no marine hospitals.....	22
Port sanitation.....	13
Posological table, metric	135

	Page.
Sanitary measures, internal	13
Savannah and Brunswick, yellow fever at, in 1876	167, 175
Savannah, drainage of	178
sanitary condition of	176, 177
sewerage of	168, 177
yellow fever at, in 1876	167
Schedule of proportion of crew to tonnage	16
Seamen, able-bodied, should have medical certificates	153
American, abandoned, sick, and destitute	8
disposition of effects of	16
from abroad naturally seek marine hospitals	7
in foreign countries	6
returned from abroad	6, 7, 8
diseased, not to be turned loose on the community	153
exposed to epidemic and infectious diseases	17
foreign	6
furnished transportation	5
improvidence and hardships of	17
injured in the line of duty	13
insane	5
national protection of	17
number of, required in ordinary navigation	16
relieved	4, 27
on vessels of United States Government	5
physical examination of	12, 13, 109, 147
rescued from wrecked vessels	12
sent to hospital	4, 27, 39
ship indiscriminately on Government and on merchant vessels	6
treated as out-patients	4, 27
Seamen's Friend Societies	17
Seaman's time-book	15
only one fine for not keeping	16
Seamen, unseaworthy	13, 35, 147, 148, 149, 150, 152
who die on voyages	16
Service divided into districts	11
Sewerage at Savannah	167, 168, 177
Shipping commissioner's act	16
Ships, safety of, and of those who travel in them	13
Sick and destitute seamen abandoned	8
Sick Mariners' fund of Canada	8
Small-pox, deaths from	35
SMITH, HENRY, Assistant Surgeon, on "Yellow Fever in Savannah and Brunswick in 1876"	175
South Atlantic District	37
Stations, classes one, two, and three	37, 38
Stations and districts of the Service	37
relief, grouped into districts	11
of the Service	11

	Page.
Statistics, financial and economic	27
medical and surgical	37
comments on	35
STONE, GEO. H., Assistant Surgeon, on "Yellow Fever at Savannah in 1876" ..	167
Supervising Surgeon-General, administrative duties of	22
office of	22
clerical force of	23
operations of the Service prior to appointment of ..	27
after appointment of ..	27
Supervision of the Service	11
Surgeons and assistant surgeons	9
assistant, promoted to surgeons	9
Surgical appliances furnished	5
Surplus of receipts over expenditures	3
Syphilis	35
and chancreoid	36

T.

Time-book, seaman's	15
Transportation of permanently-disabled seamen from hospital to their homes ..	5
to hospital	5

U.

Unseaworthy seamen	13, 35, 147, 148, 149, 150, 152
--------------------------	---------------------------------

V.

Value of the troy grain differs	114
pound differs	114
Vessels, detention of, in quarantine	13
of the United States Government, seamen on	5

W.

Washing furnished seamen in hospital	5
Weights and measures, international	114
Apothecaries', approximate equivalents of, in metric terms	124, 125
metric	109, 113
not metric	114
relation of metric to Apothecaries'	133
Apothecaries' to metric	134
Whalers, seamen on	6, 7
Wrecked vessels, seamen rescued from	12
WYMAN, WALTER, Surgeon, on "River Exposure and its Effects on the Lungs" ..	109, 157

Y.

Yards converted into metres	129
Yellow fever and cholera	13
deaths from	35

	Page.
Yellow Fever at Brunswick in 1876.....	186
Fernandina in 1877.....	191
Havana in 1876.....	181
Savannah in 1876.....	167
and Brunswick in 1876.....	175
epidemic, services of medical officers in.....	14
poison.....	175, 176
prevention of, by sanitary measures.....	196, 199
origin of, at Savannah in 1876.....	180
Fernandina in 1877.....	194
reports on.....	109, 110
type of, at Savannah in 1876.....	182, 183



